

SEQUENCE LISTING

525 Rec'd PCT/PTO 04 DEC 2000

<110> CUNNINGHAM JR., FRANCIS X.
SUN, ZAIREN

<120> GENES OF CAROTENOID BIOSYNTHESIS AND METABOLISM AND
METHODS OF USE THEREOF

<130> 8172-9023

<140> NOT YET ASSIGNED

<141> 1999-06-02

<150> 09/088,724

<151> 1998-06-02

<150> 09/088,725

<151> 1998-06-02

<160> 61

<170> PatentIn Ver. 2.0

<210> 1

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<221> CDS

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Met Glu Cys
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Pro	Pro	Ile	Ser	Ile	Gly	Asp	Gly	Ala	Leu	Asp	His	Val	Val	Ile	Gly	
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TGT	GGT	CCT	GCT	GGT	TTA	GCC	TTG	GCT	GCA	GAA	TCA	GCT	AAG	CTT	GGA	501
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Glu	His	Val	Trp	Arg	Glu	Thr	Ile	Val	Tyr	Leu	Asp	Asp	Asp	Lys	Pro	
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Ile	Thr	Ile	Gly	Arg	Ala	Tyr	Gly	Arg	Val	Ser	Arg	Arg	Leu	Leu	His	
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 Lys Tyr Ala Ser Val Ile Ala Glu Ile Leu Arg Glu Glu Thr Thr Lys
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Met Thr Val Tyr Gly Leu Ile Tyr Phe Ile Leu His Asp Gly Leu Val
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His Gln Arg Trp Pro Phe Arg Tyr Ile Pro Arg Arg Gly Tyr Phe Arg
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Arg Leu Tyr Gln Ala His Arg Leu His His Ala Val Glu Gly Arg Asp
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 Gln Arg Trp Pro Phe His Trp Ile Pro Arg Arg Gly Tyr Leu Lys Arg
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 Cys Val Ser Phe Gly Phe Ile Tyr Ala Arg Lys Pro Ala Asp Leu Gln
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<213> Haematococcus pluvialis

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 CCAGCTGTGC ACACGCGCGA CTCCAGTTTA AGCTCAGGAG CATGCAGCTG CTTTCCGAGG 180
 ACCGCACAGA CCACATGAGG GGTGCAAGCA CCTGGGCAGG CGGGCAGTCG CAGGATGAGC 240
 TGATGCTGAA GGACGAGTGC ATCTTGCTAG ATGTTGAGGA CAACATCACA GGCCATGCCA 300
 GCAAGCTGGA GTGTCACAAG TTCCTACCAC ATCAGCCTGC AGGCCTGCTG CACCGGGCCT 360
 TCTCTGTGTT CCTGTTTGAC GATCAGGGGC GACTGCTGCT GCAACAGCGT GCACGCTCAA 420
 AAATCACCTT CCCAAGTGTG TGGACGAACA CCTGCTGCAG CCACCCTTTA CATGGGCAGA 480
 CCCCAGATGA GGTGGACCAA CTAAGCCAGG TGGCCGACGG AACAGTACCT GGCGCAAAGG 540
 CTGCTGCCAT CCGCAAGTTG GAGCACGAGC TGGGGATACC AGCGCACCAG CTGCCGGCAA 600
 GCGCGTTTCG CTTCCTCACG CGTTTGCACT ACTGTGCCGC GGACGTGCAG CCAGCTGCGA 660
 CACAATCAGC GCTCTGGGGC GAGCACGAAA TGGACTACAT CTTGTTTCATC CGGGCCAACG 720
 TCACCTTGGC GCCCAACCTT GACGAGGTGG ACGAAGTCAG GTACGTGACG CAAGAGGAGC 780
 TCGGCAGAT GATGCAGCCG GACAACGGGC TTCAATGGTC GCCGTGGTTT CGCATCATCG 840
 CCGCGCGCTT CCTTGAGCGT TGGTGGGCTG ACCTGGACGC GGCCCTAAAC ACTGACAAAC 900
 ACGAGGATTG GGGAACGGTG CATCACATCA ACGAAGCGTG AAGGCAGAAG CTGCAGGATG 960
 TGAAGACACG TCATGGGGTG GAATTGCGTA CTTGGCAGCT TCGTATCTCC TTTTCTGAG 1020
 ACTGAACCTG CAGAGCTAGA GTCAATGGTG CATCATATTC ATCGTCTCTC TTTTGTTTTA 1080
 GACTAATCTG TAGCTAGAGT CACTGATGAA TCCTTTACAA CTTTCAAAAA AAAAA 1135

<210> 13
 <211> 960
 <212> DNA
 <213> *Tagetes erecta*

<400> 13
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 ACAATGTGGT GGGACATGAT ACCAAATACA ATTGTCACTT GATGGAGAAG ATTGAAACAG 180
 GTAAAATGCT GCACAGAGCA TTCAGCGTTT TTCTATTCAA TTCAAATAC GAGTTACTTC 240
 TTCAGCAACG GTCTGCAACC AAGGTGACAT TTCCTTTAGT ATGGACCAAC ACCTGTTGCA 300
 GCCATCCACT CTACAGAGAA TCCGAGCTTG TTCCCGAAAC GCCTGAGAGA ATGCTGCACA 360
 GAGGANNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN 420
 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN 480

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NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN 540
NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN 600
NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN 660
NNNNNNNNNN NNNNNNNNNN TCATGTGCAA AAGGGTACAC TCACTGAATG CAATTTGATA 720
TGAAAACCAT ACACAAGCTG ATATAGAAAC ACACCCTCAA CCGAAAAGCA AGCCTAATAA 780
TTCGGGTTGG GTCGGGTCTA CCATCAATTG TTTTCTTCTT TTAACAACCTT TTAATCTCTA 840
TTTGAGCATG TTGATTCTTG TCTTTTGTGT GTAAGATTTT GGGTTTCGTT TCAGTTGTAA 900
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<210> 14

<211> 305

<212> PRT

<213> Haematococcus pluvialis

<400> 14

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      20             25             30

Arg Ser Met Gln Met Thr Leu Met Gln Pro Ser Ile Ser Ala Asn Leu
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Ser Arg Ala Glu Asp Arg Thr Asp His Met Arg Gly Ala Ser Thr Trp
      50             55             60

Ala Gly Gly Gln Ser Gln Asp Glu Leu Met Leu Lys Asp Glu Cys Ile
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Leu Val Asp Val Glu Asp Asn Ile Thr Gly His Ala Ser Lys Leu Glu
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Cys His Lys Phe Leu Pro His Gln Pro Ala Gly Leu Leu His Arg Ala
      100            105            110

Phe Ser Val Phe Leu Phe Asp Asp Gln Gly Arg Leu Leu Leu Gln Gln
      115            120            125

Arg Ala Arg Ser Lys Ile Thr Phe Pro Ser Val Trp Thr Asn Thr Cys
      130            135            140

Cys Ser His Pro Leu His Gly Gln Thr Pro Asp Glu Val Asp Gln Leu
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Ser Gln Val Ala Asp Gly Thr Val Pro Gly Ala Lys Ala Ala Ala Ile
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Arg Lys Leu Glu His Glu Leu Gly Ile Pro Ala His Gln Leu Pro Ala
      180            185            190

Ser Ala Phe Arg Phe Leu Thr Arg Leu His Tyr Cys Ala Ala Asp Val
      195            200            205

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Gln Pro Ala Ala Thr Gln Ser Ala Leu Trp Gly Glu His Glu Met Asp
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 Tyr Ile Leu Phe Ile Arg Ala Asn Val Thr Leu Ala Pro Asn Pro Asp
 225 230 235 240
 Glu Val Asp Glu Val Arg Tyr Val Thr Gln Glu Glu Leu Arg Gln Met
 245 250 255
 Met Gln Pro Asp Asn Gly Leu Gln Trp Ser Pro Trp Phe Arg Ile Ile
 260 265 270
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 Asn Thr Asp Lys His Glu Asp Trp Gly Thr Val His His Ile Asn Glu
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Ala
 305

<210> 15
 <211> 293
 <212> PRT
 <213> Haematococcus pluvialis

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 35 40 45
 Ala Ser Thr Trp Ala Gly Gly Gln Ser Gln Asp Glu Leu Met Leu Lys
 50 55 60
 Asp Glu Cys Ile Leu Val Asp Val Glu Asp Asn Ile Thr Gly His Ala
 65 70 75 80
 Ser Lys Leu Glu Cys His Lys Phe Leu Pro His Gln Pro Ala Gly Leu
 85 90 95
 Leu His Arg Ala Phe Ser Val Phe Leu Phe Asp Asp Gln Gly Arg Leu
 100 105 110
 Leu Leu Gln Gln Arg Ala Arg Ser Lys Ile Thr Phe Pro Ser Val Trp
 115 120 125
 Thr Asn Thr Cys Cys Ser His Pro Leu His Gly Gln Thr Pro Asp Glu
 130 135 140
 Val Asp Gln Leu Ser Gln Val Ala Asp Gly Thr Val Pro Gly Ala Lys
 145 150 155 160
 Ala Ala Ala Ile Arg Lys Leu Glu His Glu Leu Gly Ile Pro Ala His
 165 170 175
 Gln Leu Pro Ala Ser Ala Phe Arg Phe Leu Thr Arg Leu His Tyr Cys

180										185										190																																			
Ala	Ala	Asp	Val	Gln	Pro	Ala	Ala	Thr	Gln	Ser	Ala	Leu	Trp	Gly	Glu																																								
		195						200					205																																										
His	Glu	Met	Asp	Tyr	Ile	Leu	Phe	Ile	Arg	Ala	Asn	Val	Thr	Leu	Ala																																								
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Pro	Asn	Pro	Asp	Glu	Val	Asp	Glu	Val	Arg	Tyr	Val	Thr	Gln	Glu	Glu																																								
	225				230					235					240																																								
Leu	Arg	Gln	Met	Met	Gln	Pro	Asp	Asn	Gly	Leu	Gln	Trp	Ser	Pro	Trp																																								
			245						250					255																																									
Phe	Arg	Ile	Ile	Ala	Ala	Arg	Phe	Leu	Glu	Arg	Trp	Trp	Ala	Asp	Leu																																								
			260					265					270																																										
Asp	Ala	Ala	Leu	Asn	Thr	Asp	Lys	His	Glu	Asp	Trp	Gly	Thr	Val	His																																								
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Leu	Ala	Leu	Ser	Ser	Ser	Phe	Ser	Ser	Phe	Arg	Phe	Ala	His	Arg	Pro																																								
			20					25					30																																										
Leu	Ser	Ser	Ile	Ser	Pro	Arg	Lys	Leu	Pro	Asn	Phe	Arg	Ala	Phe	Ser																																								
			35				40					45																																											
Gly	Thr	Ala	Met	Thr	Asp	Thr	Lys	Asp	Ala	Gly	Met	Asp	Ala	Val	Gln																																								
		50				55					60																																												
Arg	Arg	Leu	Met	Phe	Glu	Asp	Glu	Cys	Ile	Leu	Val	Asp	Glu	Thr	Asp																																								
		65			70				75					80																																									
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Ile	Glu	Ala	Lys	Asn	Leu	Leu	His	Arg	Ala	Phe	Ser	Val	Phe	Leu	Phe																																								
			100					105					110																																										
Asn	Ser	Lys	Tyr	Glu	Leu	Leu	Leu	Gln	Gln	Arg	Ser	Asn	Thr	Lys	Val																																								
			115				120					125																																											
Thr	Phe	Pro	Leu	Val	Trp	Thr	Asn	Thr	Cys	Cys	Ser	His	Pro	Leu	Tyr																																								
			130			135					140																																												
Arg	Glu	Ser	Glu	Leu	Ile	Gln	Asp	Asn	Ala	Leu	Gly	Val	Arg	Asn	Ala																																								
			145			150				155				160																																									
Ala	Gln	Arg	Lys	Leu	Leu	Asp	Glu	Leu	Gly	Ile	Val	Ala	Glu	Asp	Val																																								
				165				170					175																																										

Pro Val Asp Glu Phe Thr Pro Leu Gly Arg Met Leu Tyr Lys Ala Pro
 180 185 190

Ser Asp Gly Lys Trp Gly Glu His Glu Leu Asp Tyr Leu Leu Phe Ile
 195 200 205

Val Arg Asp Val Lys Val Gln Pro Asn Pro Asp Glu Val Ala Glu Ile
 210 215 220

Lys Tyr Val Ser Arg Glu Glu Leu Lys Glu Leu Val Lys Lys Ala Asp
 225 230 235 240

Ala Gly Glu Glu Gly Leu Lys Leu Ser Pro Trp Phe Arg Leu Val Val
 245 250 255

Asp Asn Phe Leu Met Lys Trp Trp Asp His Val Glu Lys Gly Thr Leu
 260 265 270

Val Glu Ala Ile Asp Met Lys Thr Ile His Lys Leu
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<210> 17

<211> 287

<212> PRT

<213> Clarkia breweri

<400> 17

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Pro Leu Leu Ser Ser Pro Pro Ser Arg Val His Leu Pro Leu Cys Phe
 20 25 30

Phe Ser Pro Ile Ser Leu Thr Gln Arg Phe Ser Ala Lys Leu Thr Phe
 35 40 45

Ser Ser Gln Ala Thr Thr Met Gly Glu Val Val Asp Ala Gly Met Asp
 50 55 60

Ala Val Gln Arg Arg Leu Met Phe Glu Asp Glu Cys Ile Leu Val Asp
 65 70 75 80

Glu Asn Asp Lys Val Val Gly His Glu Ser Lys Tyr Asn Cys His Leu
 85 90 95

Met Glu Lys Ile Glu Ser Glu Asn Leu Leu His Arg Ala Phe Ser Val
 100 105 110

Phe Leu Phe Asn Ser Lys Tyr Glu Leu Leu Leu Gln Gln Arg Ser Ala
 115 120 125

Thr Lys Val Thr Phe Pro Leu Val Trp Thr Asn Thr Cys Cys Ser His
 130 135 140

Pro Leu Tyr Arg Glu Ser Glu Leu Ile Asp Glu Asn Cys Leu Gly Val
 145 150 155 160

Arg Asn Ala Ala Gln Arg Lys Leu Leu Asp Glu Leu Gly Ile Pro Ala
 165 170 175

Glu Asp Leu Pro Val Asp Gln Phe Ile Pro Leu Ser Arg Ile Leu Tyr

180	185	190
Lys Ala Pro Ser Asp Gly Lys Trp Gly Glu His Glu Leu Asp Tyr Leu 195 200 205		
Leu Phe Ile Ile Arg Asp Val Asn Leu Asp Pro Asn Pro Asp Glu Val 210 215 220		
Ala Glu Val Lys Tyr Met Asn Arg Asp Asp Leu Lys Glu Leu Leu Arg 225 230 235 240		
Lys Ala Asp Ala Glu Glu Glu Gly Val Lys Leu Ser Pro Trp Phe Arg 245 250 255		
Leu Val Val Asp Asn Phe Leu Phe Lys Trp Trp Asp His Val Glu Lys 260 265 270		
Gly Ser Leu Lys Asp Ala Ala Asp Met Lys Thr Ile His Lys Leu 275 280 285		
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<211> 261		
<212> PRT		
<213> Arabidopsis thaliana		
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Asn Asp Ala Gly Met Asp Ala Val Gln Arg Arg Leu Met Phe Glu Asp 35 40 45		
Glu Cys Ile Leu Val Asp Glu Asn Asn Arg Val Val Gly His Asp Thr 50 55 60		
Lys Tyr Asn Cys His Leu Met Glu Lys Ile Glu Ala Glu Asn Leu Leu 65 70 75 80		
His Arg Ala Phe Ser Val Phe Leu Phe Asn Ser Lys Tyr Glu Leu Leu 85 90 95		
Leu Gln Gln Arg Ser Lys Thr Lys Val Thr Phe Pro Leu Val Trp Thr 100 105 110		
Asn Thr Cys Cys Ser His Pro Leu Tyr Arg Glu Ser Glu Leu Ile Glu 115 120 125		
Glu Asn Val Leu Gly Val Arg Asn Ala Ala Gln Arg Lys Leu Phe Asp 130 135 140		
Glu Leu Gly Ile Val Ala Glu Asp Val Pro Val Asp Glu Phe Thr Pro 145 150 155 160		
Leu Gly Arg Met Leu Tyr Lys Ala Pro Ser Asp Gly Lys Trp Gly Glu 165 170 175		
His Glu Val Asp Tyr Leu Leu Phe Ile Val Arg Asp Val Lys Leu Gln 180 185 190		

Pro Asn Pro Asp Glu Val Ala Glu Ile Lys Tyr Val Ser Arg Glu Glu
 195 200 205

Leu Lys Glu Leu Val Lys Lys Ala Asp Ala Gly Asp Glu Ala Val Lys
 210 215 220

Leu Ser Pro Trp Phe Arg Leu Val Val Asp Asn Phe Leu Met Lys Trp
 225 230 235 240

Trp Asp His Val Glu Lys Gly Thr Ile Thr Glu Ala Ala Asp Met Lys
 245 250 255

Thr Ile His Lys Leu
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<210> 19
 <211> 288
 <212> PRT
 <213> *Saccharomyces cerevisiae*

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Pro Glu Ile Ile Pro Leu Gln Gln Arg Pro Asn Thr Arg Ser Ser Glu
 35 40 45

Thr Ser Asn Asp Glu Ser Gly Glu Thr Cys Phe Ser Gly His Asp Glu
 50 55 60

Glu Gln Ile Lys Leu Met Asn Glu Asn Cys Ile Val Leu Asp Trp Asp
 65 70 75 80

Asp Asn Ala Ile Gly Ala Gly Thr Lys Lys Val Cys His Leu Met Glu
 85 90 95

Asn Ile Glu Lys Gly Leu Leu His Arg Ala Phe Ser Val Phe Ile Phe
 100 105 110

Asn Glu Gln Gly Glu Leu Leu Leu Gln Gln Arg Ala Thr Glu Lys Ile
 115 120 125

Thr Phe Pro Asp Leu Trp Thr Asn Thr Cys Cys Ser His Pro Leu Cys
 130 135 140

Ile Asp Asp Glu Leu Gly Leu Lys Gly Lys Leu Asp Asp Lys Ile Lys
 145 150 155 160

Gly Ala Ile Thr Ala Ala Val Arg Lys Leu Asp His Glu Leu Gly Ile
 165 170 175

Pro Glu Asp Glu Thr Lys Thr Arg Gly Lys Phe His Phe Leu Asn Arg
 180 185 190

Ile His Tyr Met Ala Pro Ser Asn Glu Pro Trp Gly Glu His Glu Ile
 195 200 205

Asp Tyr Ile Leu Phe Tyr Lys Ile Asn Ala Lys Glu Asn Leu Thr Val

210 215 220

Asn Pro Asn Val Asn Glu Val Arg Asp Phe Lys Trp Val Ser Pro Asn
 225 230 235 240

Asp Leu Lys Thr Met Phe Ala Asp Pro Ser Tyr Lys Phe Thr Pro Trp
 245 250 255

Phe Lys Ile Ile Cys Glu Asn Tyr Leu Phe Asn Trp Trp Glu Gln Leu
 260 265 270

Asp Asp Leu Ser Glu Val Glu Asn Asp Arg Gln Ile His Arg Met Leu
 275 280 285

<210> 20
 <211> 456
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Consensus
 sequence of four plant B-cyclases

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 20 25 30

Lys Ser Ser Ala Leu Leu Glu Leu Val Pro Glu Thr Lys Lys Glu Asn
 35 40 45

Leu Asp Phe Glu Leu Pro Met Tyr Asp Pro Ser Lys Gly Val Val Asp
 50 55 60

Leu Ala Val Val Gly Gly Gly Pro Ala Gly Leu Ala Val Ala Gln Gln
 65 70 75 80

Val Ser Glu Ala Gly Leu Ser Val Cys Ser Ile Asp Pro Pro Lys Leu
 85 90 95

Ile Trp Pro Asn Asn Tyr Gly Val Trp Val Asp Glu Phe Glu Ala Met
 100 105 110

Asp Leu Leu Asp Cys Leu Asp Ala Thr Trp Ser Gly Ala Val Tyr Ile
 115 120 125

Asp Asp Thr Lys Asp Leu Arg Pro Tyr Gly Arg Val Asn Arg Lys Gln
 130 135 140

Leu Lys Ser Lys Met Met Gln Lys Cys Ile Asn Gly Val Lys Phe His
 145 150 155 160

Gln Ala Lys Val Ile Lys Val Ile His Glu Gly Lys Ser Met Leu Ile
 165 170 175

Cys Asn Asp Gly Thr Ile Gln Ala Thr Val Val Leu Asp Ala Thr Gly
 180 185 190

Phe Ser Arg Leu Val Gln Tyr Asp Lys Pro Tyr Asn Pro Gly Tyr Gln

195	200	205
Val Ala Tyr Gly Ile Leu 210	Ala Glu Val Glu Glu 215	His Pro Phe Asp Lys 220
Met Val Phe Met Asp Trp Arg Asp Ser His Leu Asn Asn Glu Leu Lys 225	230	235 240
Glu Arg Asn Ser Ile Pro Thr Phe Leu Tyr Ala Met Pro Phe Ser Ser 245	250	255
Asn Arg Ile Phe Leu Glu Glu Thr Ser Leu Val Ala Arg Pro Gly Leu 260	265	270
Arg Met Asp Asp Ile Gln Glu Arg Met Val Ala Arg Leu His Leu Gly 275	280	285
Ile Lys Val Lys Ser Ile Glu Glu Asp Glu His Cys Val Ile Pro Met 290	295	300
Gly Gly Pro Leu Pro Val Leu Pro Gln Arg Val Val Gly Ile Gly Gly 305	310	315 320
Thr Ala Gly Met Val His Pro Ser Thr Gly Tyr Met Val Ala Arg Thr 325	330	335
Leu Ala Ala Ala Pro Val Val Ala Asn Ala Ile Ile Tyr Leu Gly Ser 340	345	350
Glu Ser Ser Gly Glu Leu Ser Ala Glu Val Trp Lys Asp Leu Trp Pro 355	360	365
Ile Glu Arg Arg Arg Gln Arg Glu Phe Phe Cys Phe Gly Met Asp Ile 370	375	380
Leu Leu Lys Leu Asp Leu Pro Ala Thr Arg Arg Phe Phe Asp Ala Phe 385	390	395 400
Phe Asp Leu Glu Pro Arg Tyr Trp His Gly Phe Leu Ser Ser Arg Leu 405	410	415
Phe Leu Pro Glu Leu Ile Val Phe Gly Leu Ser Leu Phe Ser His Ala 420	425	430
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<211> 524		
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<400> 21		
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Phe Pro Ser Trp Ser Cys Arg Arg Lys Phe Pro Val Val Lys Arg Tyr 20	25	30

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 35 40 45
 Gly Gly Ser Ser Gly Ser Glu Ser Cys Val Ala Val Arg Glu Asp Phe
 50 55 60
 Ala Asp Glu Glu Asp Phe Val Lys Ala Gly Gly Ser Glu Ile Leu Phe
 65 70 75 80
 Val Gln Met Gln Gln Asn Lys Asp Met Asp Glu Gln Ser Lys Leu Val
 85 90 95
 Asp Lys Leu Pro Pro Ile Ser Ile Gly Asp Gly Ala Leu Asp His Val
 100 105 110
 Val Ile Gly Cys Gly Pro Ala Gly Leu Ala Leu Ala Ala Glu Ser Ala
 115 120 125
 Lys Leu Gly Leu Lys Val Gly Leu Ile Gly Pro Asp Leu Pro Phe Thr
 130 135 140
 Asn Asn Tyr Gly Val Trp Glu Asp Glu Phe Asn Asp Leu Gly Leu Gln
 145 150 155 160
 Lys Cys Ile Glu His Val Trp Arg Glu Thr Ile Val Tyr Leu Asp Asp
 165 170 175
 Asp Lys Pro Ile Thr Ile Gly Arg Ala Tyr Gly Arg Val Ser Arg Arg
 180 185 190
 Leu Leu His Glu Glu Leu Leu Arg Arg Cys Val Glu Ser Gly Val Ser
 195 200 205
 Tyr Leu Ser Ser Lys Val Asp Ser Ile Thr Glu Ala Ser Asp Gly Leu
 210 215 220
 Arg Leu Val Ala Cys Asp Asp Asn Asn Val Ile Pro Cys Arg Leu Ala
 225 230 235 240
 Thr Val Ala Ser Gly Ala Ala Ser Gly Lys Leu Leu Gln Tyr Glu Val
 245 250 255
 Gly Gly Pro Arg Val Cys Val Gln Thr Ala Tyr Gly Val Glu Val Glu
 260 265 270
 Val Glu Asn Ser Pro Tyr Asp Pro Asp Gln Met Val Phe Met Asp Tyr
 275 280 285
 Arg Asp Tyr Thr Asn Glu Lys Val Arg Ser Leu Glu Ala Glu Tyr Pro
 290 295 300
 Thr Phe Leu Tyr Ala Met Pro Met Thr Lys Ser Arg Leu Phe Phe Glu
 305 310 315 320
 Glu Thr Cys Leu Ala Ser Lys Asp Val Met Pro Phe Asp Leu Leu Lys
 325 330 335
 Thr Lys Leu Met Leu Arg Leu Asp Thr Leu Gly Ile Arg Ile Leu Lys
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 Thr Tyr Glu Glu Glu Trp Ser Tyr Ile Pro Val Gly Gly Ser Leu Pro

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<210> 22
<211> 1898
<212> DNA
<213> Adonis palaestina
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ACTTGGTGTT CGCAACCTCA TCTCTTCTTG CCCTGTGTGG ACTTTTGGA CAAGAAACCT	180
TAGTAGTTCA AACTAGCTT ATAACATACA TCGATATGGT TCTTCTTGTA GAGTAGATTT	240
TCAAGTGAGA GCTGATGGTG GAAGCGGGAG TAGAAGTTCT GTTGCTTATA AAGAGGGTTT	300
TGTGGATGAA GAGGATTTTA TCAAAGCTGG TGGTTCTGAG CTTTTGTTTG TCCAAATGCA	360
GCAAACAAAG TCTATGGAGA AACAGGCCAA GCTCGCCGAT AAGTTGCCAC CAATACCTTT	420
TGGAGAATCC GTGATGGACT TGGTTGTAAT AGGTTGTGGA CCTGCTGGTC TTTCCTGGC	480
TGCAGAAGCT GCTAAGCTAG GGTGAAAGT TGGCCTTATT GGTCTGATC TTCCTTTTAC	540
AAATAATTAT GGTGTGTGGG AAGACGAGTT CAAAGATCTT GGAATTGAAC GTTGTATCGA	600
GCATGCTTGG AAGGACACCA TCGTATATCT TGATAATGAT GCTCCTGTCC TTATTGGTCG	660
TGCATATGGA CGAGTTAGTC GACATTTGCT ACATGAGGAG TTGCTGAAAA GGTGTGTGGA	720

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TAGCCTTGTA GTTTGTGAAA ATGAGATCTT TATCCCTTGC AGGCTTGCTA CTGTTGCATC 840
TGGAGCAGCT TCAGGGAAAC TTTTGGAGTA TGAAGTAGGT GGCCCTCGTG TTTGTGTCCA 900
AACCGCTTAT GGGGTGGAGG TTGAGGTGGA GAACAATCCA TACGATCCCA ACTTAATGGT 960
ATTCATGGAC TACAGAGACT ATATGCAACA GAAATTACAG TGCTCGGAAG AAGAATATCC 1020
AACATTTCTC TATGTCATGC CCATGTCGCC AACAAGACTT TTTTGTGAGG AAACCTGTTT 1080
GGCCTCAAAA GATGCCATGC CATTGATCT ACTGAAGAGA AAACCTGATGT CACGATTGAA 1140
GACTCTGGGT ATCCAAGTTA CAAAAGTTA TGAAGAGGAA TGGTCATATA TTCCTGTTGG 1200
TGGTTCTTTA CCAAACACAG AGCAAAAGAA CCTAGCATTT GGTGCTGCAG CAAGCATGGT 1260
GCATCCAGCA ACAGGCTATT CGGTTGTACG GTCACGTGCA GAAGCTCCAA AATATGCTTC 1320
TGTAATTGCA AAGATTTTGA AGCAAGATAA CTCTGCGTAT GTGGTTTCTG GACAAAGTAG 1380
TGCAGTAAAC ATTTCAATGC AAGCATGGAG CAGTCTTTGG CCAAAGGAGC GAAAACGTCA 1440
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AACATTCTTT AGAACCTTCT TCCGCTTGCC AACTTGATG TGGTGGGGTT TCCTTGGGTC 1560
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CAGCATGAGG ATGTCACTTG TGAGACATTT GCTTTCAGAT CCTTCTGGTG CAGTTATGGT 1680
AAGAGCTTAC CTCGAAAGGT AGTCTCATCT ATTATTAAAC TCTAGTGTTT CACCAAATAA 1740
ATGAGGATCC TTCGAATGTG TATATGATCA TCTCTATGTA TATCCTGTAC TCTAATCTCA 1800
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TATTGATACA AAAGTAGTTT TTTTCCTTAA AAAAAAAA 1898

<210> 23

<211> 529

<212> PRT

<213> Adonis palaestina

<400> 23

Met Glu Leu Leu Gly Val Arg Asn Leu Ile Ser Ser Cys Pro Val Trp
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Thr Phe Gly Thr Arg Asn Leu Ser Ser Ser Lys Leu Ala Tyr Asn Ile
20 25 30

His Arg Tyr Gly Ser Ser Cys Arg Val Asp Phe Gln Val Arg Ala Asp
35 40 45

Gly Gly Ser Gly Ser Arg Ser Ser Val Ala Tyr Lys Glu Gly Phe Val
50 55 60

Asp Glu Glu Asp Phe Ile Lys Ala Gly Gly Ser Glu Leu Leu Phe Val
65 70 75 80

24

405								410				415			
Val	Val	Ser	Gly	Gln	Ser	Ser	Ala	Val	Asn	Ile	Ser	Met	Gln	Ala	Trp
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Ser	Ser	Leu	Trp	Pro	Lys	Glu	Arg	Lys	Arg	Gln	Arg	Ala	Phe	Phe	Leu
		435					440					445			
Phe	Gly	Leu	Glu	Leu	Ile	Val	Gln	Leu	Asp	Ile	Glu	Ala	Thr	Arg	Thr
	450					455					460				
Phe	Phe	Arg	Thr	Phe	Phe	Arg	Leu	Pro	Thr	Trp	Met	Trp	Trp	Gly	Phe
465					470				475						480
Leu	Gly	Ser	Ser	Leu	Ser	Ser	Phe	Asp	Leu	Val	Leu	Phe	Ser	Met	Tyr
				485				490						495	
Met	Phe	Val	Leu	Ala	Pro	Asn	Ser	Met	Arg	Met	Ser	Leu	Val	Arg	His
			500					505					510		
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Arg

<210> 24
 <211> 1370
 <212> DNA
 <213> Potato

<400> 24
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 GTTAGTCGCC ATTTACTGCA CGAGGAGTTA CTCAAAAGGT GTGTGGAGGC AGGTGTTTTG 180
 TATCTAAACT CGAAAGTGGG TAGGATTGTT GAGGCCACAA ATGGCCACAG TCTTGTAGAG 240
 TGCGAGGGTG ATGTTGTGAT TCCCTGCAGG TTTGTGACTG TTGCATCGGG AGCAGCCTCG 300
 GGGAAATTCT TGCAGTATGA GTTGGGAGGT CCTAGAGTTT CTGTTCAAAC AGCTTATGGA 360
 GTGGAAGTTG AGGTCGATAA CAATCCATTT GACCCGAGCC TGATGGTTTT CATGGATTAT 420
 AGAGACTATG TCAGACACGA CGCTCAATCT TTAGAAGCTA AATATCCAAC ATTTCTCTAT 480
 GCCATGCCCA TGTCTCCAAC ACGAGTCTTT TTCGAGGAAA CTTGTTTGGC TTCAAAAGAT 540
 GCAATGCCAT TCGATCTGTT AAAGAAAAAA TTGATGTTAC GATTGAACAC CCTCGGTGTA 600
 AGAATTAAAG AAATTTATGA GGAGGAATGG TCTTACATAC CAGTTGGAGG ATCTTTGCCA 660
 AATACAGAAC AAAAAACACT TGCATTTGGT GCTGCTGCTA GCATGGTTCA TCCAGCCACA 720
 GGTTATTTCAG TCGTCAGATC ACTGTCTGAA GCTCCAAAAT GCGCCTTCGT GCTTGCAAAT 780
 ATATTACGAC AAAATCATAG CAAGAATATG CTTACTAGTT CAAGTACCCC GAGTATTTCA 840
 ACTCAAGCTT GGAACACTCT TTGGCCACAA GAACGAAAAC GACAAAGATC GTTTTTCCTA 900

TTTGGACTGG CTCTGATATT GCAGCTGGAT ATTGAGGGGA TAAGGTCATT TTTCCGCGCG 960
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 ACCTCATGTT ATTTGCCTTC TACATGTTTA TTATTGCACC AAATGACATG AGAAGAGGCT 1080
 TAATCAGACA TCTTTTATCT GATCCTACTG GTGCAACATT GATAAGAACT TATCTTACAT 1140
 TTTAGAGTAA ATTCCTCCTA CAATAGTTGT TGAAAGAGGC CTCATTACTT CAGATTCATA 1200
 ACAGAAATCG CGGTCTCTCG AGGCCTTGTA TATAACATTT TCACTAGGTT AATATTGCTT 1260
 GAATAAGTTG CACAGTTTCA GTTTTTGTAT CTGCTTCTTT TTTGTCCAAG ATCATGTATT 1320
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<210> 25

<211> 377

<212> PRT

<213> Potato

<400> 25

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Arg Ala Tyr Gly Arg Val Ser Arg His Leu Leu His Glu Glu Leu Leu
 35 40 45

Lys Arg Cys Val Glu Ala Gly Val Leu Tyr Leu Asn Ser Lys Val Asp
 50 55 60

Arg Ile Val Glu Ala Thr Asn Gly His Ser Leu Val Glu Cys Glu Gly
 65 70 75 80

Asp Val Val Ile Pro Cys Arg Phe Val Thr Val Ala Ser Gly Ala Ala
 85 90 95

Ser Gly Lys Phe Leu Gln Tyr Glu Leu Gly Gly Pro Arg Val Ser Val
 100 105 110

Gln Thr Ala Tyr Gly Val Glu Val Glu Val Asp Asn Asn Pro Phe Asp
 115 120 125

Pro Ser Leu Met Val Phe Met Asp Tyr Arg Asp Tyr Val Arg His Asp
 130 135 140

Ala Gln Ser Leu Glu Ala Lys Tyr Pro Thr Phe Leu Tyr Ala Met Pro
 145 150 155 160

Met Ser Pro Thr Arg Val Phe Phe Glu Glu Thr Cys Leu Ala Ser Lys
 165 170 175

Asp Ala Met Pro Phe Asp Leu Leu Lys Lys Lys Leu Met Leu Arg Leu
 180 185 190

Asn Thr Leu Gly Val Arg Ile Lys Glu Ile Tyr Glu Glu Glu Trp Ser
 195 200 205

Tyr Ile Pro Val Gly Gly Ser Leu Pro Asn Thr Glu Gln Lys Thr Leu
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 Ala Phe Gly Ala Ala Ala Ser Met Val His Pro Ala Thr Gly Tyr Ser
 225 230 235 240
 Val Val Arg Ser Leu Ser Glu Ala Pro Lys Cys Ala Phe Val Leu Ala
 245 250 255
 Asn Ile Leu Arg Gln Asn His Ser Lys Asn Met Leu Thr Ser Ser Ser
 260 265 270
 Thr Pro Ser Ile Ser Thr Gln Ala Trp Asn Thr Leu Trp Pro Gln Glu
 275 280 285
 Arg Lys Arg Gln Arg Ser Phe Phe Leu Phe Gly Leu Ala Leu Ile Leu
 290 295 300
 Gln Leu Asp Ile Glu Gly Ile Arg Ser Phe Phe Arg Ala Phe Phe Arg
 305 310 315 320
 Val Pro Lys Met Met Trp Gly Phe Leu Gly Ser Ser Leu Ser Xaa Ala
 325 330 335
 Asp Leu Met Leu Phe Ala Phe Tyr Met Phe Ile Ile Ala Pro Asn Asp
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 355 360 365
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 370 375
 <210> 26
 <211> 533
 <212> PRT
 <213> Chimeric lettuce/potato
 <400> 26
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 35 40 45
 Gln Ile Lys Cys Ser Ala Lys Ser Asp Arg Cys Val Val Asp Lys Gln
 50 55 60
 Gly Ile Ser Val Ala Asp Glu Glu Asp Tyr Val Lys Ala Gly Gly Ser
 65 70 75 80
 Glu Leu Phe Phe Val Gln Met Gln Arg Thr Lys Ser Met Glu Ser Gln
 85 90 95
 Ser Lys Leu Ser Glu Lys Leu Ala Gln Ile Pro Ile Gly Asn Cys Ile
 100 105 110
 Leu Asp Leu Val Val Ile Gly Cys Gly Pro Ala Gly Leu Ala Leu Ala

115					120					125					
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130					135					140					
Leu	Pro	Phe	Thr	Asn	Asn	Tyr	Gly	Val	Trp	Gln	Asp	Glu	Phe	Ile	Gly
145				150						155					160
Leu	Gly	Leu	Glu	Gly	Cys	Ile	Glu	His	Ser	Trp	Lys	Asp	Thr	Leu	Val
				165					170					175	
Tyr	Leu	Asp	Asp	Ala	Asp	Pro	Ile	Arg	Ile	Gly	Arg	Ala	Tyr	Gly	Arg
			180					185					190		
Val	His	Arg	Asp	Leu	Leu	His	Glu	Glu	Leu	Leu	Arg	Arg	Cys	Val	Glu
		195					200					205			
Ser	Gly	Val	Ser	Tyr	Leu	Ser	Ser	Lys	Val	Glu	Arg	Ile	Thr	Glu	Ala
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Pro	Asn	Gly	Tyr	Ser	Leu	Ile	Glu	Cys	Glu	Gly	Asn	Ile	Thr	Ile	Pro
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Cys	Arg	Leu	Ala	Thr	Val	Ala	Ser	Gly	Ala	Ala	Ser	Gly	Lys	Phe	Leu
				245					250					255	
Glu	Tyr	Glu	Leu	Gly	Gly	Pro	Arg	Val	Ser	Val	Gln	Thr	Ala	Tyr	Gly
			260					265					270		
Val	Glu	Val	Glu	Val	Asp	Asn	Asn	Pro	Phe	Asp	Pro	Ser	Leu	Met	Val
			275				280					285			
Phe	Met	Asp	Tyr	Arg	Asp	Tyr	Val	Arg	His	Asp	Ala	Gln	Ser	Leu	Glu
	290					295					300				
Ala	Lys	Tyr	Pro	Thr	Phe	Leu	Tyr	Ala	Met	Pro	Met	Ser	Pro	Thr	Arg
305					310					315					320
Val	Phe	Phe	Glu	Glu	Thr	Cys	Leu	Ala	Ser	Lys	Asp	Ala	Met	Pro	Phe
				325					330					335	
Asp	Leu	Leu	Lys	Lys	Lys	Leu	Met	Leu	Arg	Leu	Asn	Thr	Leu	Gly	Val
			340				345						350		
Arg	Ile	Lys	Glu	Ile	Tyr	Glu	Glu	Glu	Trp	Ser	Tyr	Ile	Pro	Val	Gly
		355					360					365			
Gly	Ser	Leu	Pro	Asn	Thr	Glu	Gln	Lys	Thr	Leu	Ala	Phe	Gly	Ala	Ala
		370				375					380				
Ala	Ser	Met	Val	His	Pro	Ala	Thr	Gly	Tyr	Ser	Val	Val	Arg	Ser	Leu
385					390					395					400
Ser	Glu	Ala	Pro	Lys	Cys	Ala	Phe	Val	Leu	Ala	Asn	Ile	Leu	Arg	Gln
				405					410				415		
Asn	His	Ser	Lys	Asn	Met	Leu	Thr	Ser	Ser	Ser	Thr	Pro	Ser	Ile	Ser
			420					425				430			
Thr	Gln	Ala	Trp	Asn	Thr	Leu	Trp	Pro	Gln	Glu	Arg	Lys	Arg	Gln	Arg
		435					440					445			

Ser Phe Phe Leu Phe Gly Leu Ala Leu Ile Leu Gln Leu Asp Ile Glu
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 Gly Ile Arg Ser Phe Phe Arg Ala Phe Phe Arg Val Pro Lys Trp Met
 465 470 475 480
 Trp Gln Gly Phe Leu Gly Ser Ser Leu Ser Xaa Ala Asp Leu Met Leu
 485 490 495
 Phe Ala Phe Tyr Met Phe Ile Ile Ala Pro Asn Asp Met Arg Arg Gly
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 Thr Tyr Leu Thr Phe
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 <212> PRT
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 20 25 30
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 35 40 45
 Leu Arg Arg Cys Val Glu Ser Gly Val Ser Tyr Leu Ser Ser Lys Val
 50 55 60
 Asp Ser Ile Thr Glu Ala Ser Asp Gly Leu Arg Leu Val Ala Cys Asp
 65 70 75 80
 Asp Asn Asn Val Ile Pro Cys Arg Leu Ala Thr Val Ala Ser Gly Ala
 85 90 95
 Ala Ser Gly Lys Leu Leu Gln Tyr Glu Val Gly Gly Pro Arg Val Cys
 100 105 110
 Val Gln Thr Ala Tyr Gly Val Glu Val Glu Val Glu Asn Ser Pro Tyr
 115 120 125
 Asp Pro Asp Gln Met Val Phe Met Asp Tyr Arg Asp Tyr Thr Asn Glu
 130 135 140
 Lys Val Arg Ser Leu Glu Ala Glu Tyr Pro Thr Phe Leu Tyr Ala Met
 145 150 155 160
 Pro Met Thr Lys Ser Arg Leu Phe Phe Glu Glu Thr Cys Leu Ala Ser
 165 170 175
 Lys Asp Val Met Pro Phe Asp Leu Leu Lys Thr Lys Leu Met Leu Arg
 180 185 190
 Leu Asp Thr Leu Gly Ile Arg Ile Leu Lys Thr Tyr Glu Glu Glu Trp

195					200					205					
Ser	Tyr	Ile	Pro	Val	Gly	Gly	Ser	Leu	Pro	Asn	Thr	Glu	Gln	Lys	Asn
210					215					220					
Leu	Ala	Phe	Gly	Ala	Ala	Ala	Ser	Met	Val	His	Pro	Ala	Thr	Gly	Tyr
225				230						235					240
Ser	Val	Val	Arg	Ser	Leu	Ser	Glu	Ala	Pro	Lys	Tyr	Ala	Ser	Val	Ile
				245					250					255	
Ala	Glu	Ile	Leu	Arg	Glu	Glu	Thr	Thr	Lys	Gln	Ile	Asn	Ser	Asn	Ile
			260					265					270		
Ser	Arg	Gln	Ala	Trp	Asp	Thr	Leu	Trp	Pro	Pro	Glu	Arg	Lys	Arg	Gln
		275					280					285			
Arg	Ala	Phe	Phe	Leu	Phe	Gly	Leu	Ala	Leu	Ile	Val	Gln	Phe	Asp	Thr
	290					295					300				
Glu	Gly	Ile	Arg	Ser	Phe	Phe	Arg	Thr	Phe	Phe	Arg	Leu	Pro	Lys	Trp
305					310					315					320
Met	Trp	Gln	Gly	Phe	Leu	Gly	Ser	Thr	Leu	Thr	Ser	Gly	Asp	Leu	Val
				325					330					335	
Leu	Phe	Ala	Leu	Tyr	Met	Phe	Val	Ile	Ser	Pro	Asn	Asn	Leu	Arg	Lys
			340					345					350		
Gly	Leu	Ile	Asn	His	Leu	Ile	Ser	Asp	Pro	Thr	Gly	Ala	Thr	Met	Ile
		355					360					365			
Lys	Thr	Tyr	Leu	Lys	Val										
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<211> 1002

<212> DNA

<213> Adonis palaestina

<400> 28

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GGAATGGATG CTGTTGAGAA GCGGCTCATG TTCGACGACG AATGTATTTT GGTGGATGAG	180
AATGACAAGG TCGTCGGGCA TGATTCCAAA TACAACTGTC ATTTGATGGA AAAGATAGAG	240
GCAGAAAATT TGCTTCACAG AGCCTTCAGT GTTTTCTTGT TCAACTCAA ATATGAATTG	300
CTTCTTCAGC AACGATCCGC CACAAAGGTA ACATTCCCGC TCGTATGGAC AAACACATGT	360
TGCAGTCATC CTCTCTTTTCG TGATTCCGAG CTCATAGAAG AAAATTATCT CGGTGTACGA	420
AACGCTGCAC AAAGAAAGCT TTTAGACGAG CTAGGCATTC CAGCTGAAGA TGTCCCAGTT	480
GATGAATTTA CTCCTCTTGG TCGCATTCTT TACAAAGCTC CATCTGACGG CAAATGGGGA	540
GAGCACGAAT TGGACTATCT CCTATTTATT GTCCGAGATG TGAAATACGA TCCAAACCCA	600

GATGAAGTTG CTGATGCTAA GTATGTTAAT CGCGAGGAGT TGAGAGAGAT ACTGAGAAAA	660
GCTGATGCTG GTGAAGAGGG ACTCAAGTTG TCTCCTTGGT TTAGATTGGT TGTTGATAAC	720
TTTTTGTTC AAGTGGTGGGA TCATGTAGAG CAGGGTACGA TTAAGGAAGT TGCTGACATG	780
AAACTATCC ACAAGTTGAC TTAAGAGGAC TTCTCTCCTC TGTTCTACTA TTTGTTTTTT	840
GCTACAATAA GTGGGTGGTG ATAAGCAGTT TTTCTGTTTT CTTTAATTTA TGGCTTTTGA	900
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<210> 29

<211> 1271

<212> DNA

<213> Adonis palaestina

<400> 29

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AGAATTATGT CGTCGATCAG GATTAATCCT TTATATAGTA TCTTCTCCAC CACCACTAAA	240
ACATTATCAG CTTCTGTGTTT TTCTCCCGCT GTTCATCTTC AGCAGCGTTG TACGTACTCT	300
TTCTATTTCT TCTTCCATCA CTAACAGTCC TCGCCGAGGG TTGAATCGGC TGTTGCGCTC	360
AACGTCGACT ATGGGTGAAG TCGCTGATGC TGGTATGGAT GCCGTCCAGA AGCGGCTTAT	420
GTTTCGACGAT GAATGTATTT TGGTGGATGA GAATGACAAG GTCGTGGGAC ATGATTCCAA	480
ATACAACTGT CATTTGATGG AAAAGATAGA GGCAGAAAAC TTGCTTCACA GAGCCTTCAG	540
TGTTTTCTTA TTCAACTCAA AATACGAGTT GCTTCTTCAG CAACGATCTG CAACGAAGGT	600
AACATTCCCC CTCGTATGGA CAAACACCTG TTGCAGCCAT CCCCTCTTCC GTGATTCCGA	660
ACTCATAGAA GAAAATTTTC TCGGGGTACG AAACGCTGCA CAAAGGAAGC TTTTAGACGA	720
GCTAGGCATT CCAGCTGAAG ACGTACCAGT TGATGAATTC ACTCCTCTTG GTCGCATTCT	780
TTACAAAGCT CCATCTGACG GAAAATGGGG AGAGCACGAA CTGGACTATC TTCTGTTTAT	840
TGTCGAGAT GTGAAATACG ATCCAAACCC AGATGAAGTT GCTGACGCTA AGTACGTTAA	900
TCGCGAGGAG TTGAAAGAGA TACTGAGAAA AGCTGATGCA GGTGAAGAGG GAATAAAGTT	960
GTCTCCTTGG TTTAGATTGG TTGTGGATAA CTTTTGTTC AAGTGGTGGG ATCATGTAGA	1020
GGAGGGGAAG ATTAAGGACG TCGCCGACAT GAAAACATC CACAAGTTGA CTTAAGAGAA	1080
AGTCTCTTAA GTTCTACTAT TTGGTTTTTG CTTCAATAAG TGGATGGTGA TGAGCAGTTT	1140
TTATGCTTCC TTTAATTTTG GCTTTTCAAT TTGCTTTATG TGTTGAACTT GTAACATATT	1200
TAGTCAAATA TGAGACCTTG TGAGTTGAAT TTGAGTTAT ATTTATAGTT TTGGGAACAT	1260

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1271

<210> 30

<211> 1109

<212> DNA

<213> Haematococcus pluvialis

<400> 30

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TTTAAGCTCA GGAGCATGCA GCTGCTTGCC GAGGACCGCA CAGACCACAT GAGGGGTGCA	180
AGCACCTGGG CAGGCGGGCA GTCGCAGGAT GAGCTGATGC TGAAGGACGA GTGCATCTTA	240
GTGGATGCTG ACGACAACAT CACAGGCCAT GCCAGCAAGC TGGAGTGCCA CAAATTCCTA	300
CCACATCAGC CTGCAGGCCT GCTGCACCGG GCCTTCTCTG TGTTCCCTGTT TGACGACCAG	360
GGGCGACTGC TGCTGCAACA GCGTGACACGC TCAAAAATCA CCTTCCCAAG TGTGTGGACG	420
AACACCTGCT GCAGCCACCC TCTACATGGG CAGACCCAG ATGAGGTGGA CCAACTAAGC	480
CAGGTGGCCG ACGGCACAGT ACCTGGCGCA AAAGCTGCTG CCATCCGCAA GTTGGAGCAC	540
GAGCTGGGGA TACCAGCGCA CCAGCTGCCG GCAAGCGCGT TTCGCTTCCT CACGCGTTTG	600
CACTACTGTG CCGCGGACGT GCAGCCGGCT GCGACACAAT CAGCGCTCTG GGGCGAGCAC	660
GAGATGGACT ACATCTTATT CATCCGGGCC AACGTCACCT TGGCGCCCAA CCCTGACGAG	720
GTGGACGAAG TCAGGTACGT GACGCAAGAG GAGCTGCGGC AGATGATGCA GCCGACAAC	780
GGGTTGCAAT GGTCGCCGTG GTTTCGCATC ATCGCCGCGC GCTTCCTTGA GCGTTGGTGG	840
GCTGACCTGG ACGCGGCCCT AAACACTGAC AAACACGAGG ATTGGGGAAC GGTGCATCAC	900
ATCAACGAAG CGTGAAGGCA GAAGCTGCAG GATGTGAAGA CACGTCATGG GGTGGAATTG	960
CGTACTTGGC AGCTTCGTAT CTCCTTTTTC TGAGACTGAA CCTGCAGAGC TAGAGTCAAT	1020
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<210> 31

<211> 985

<212> DNA

<213> Lactuca sativa

<400> 31

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TAGTGTTTTT CTCCACCCTC TTTCGTCTGC CGCTATGGGC GATTCCAGCA TGGATGCTGT	180
CCAGCGACGT CTCATGTTTC ATGACGAATG CATTTTGGTG GATGAGAATG ACAAAGTGGT	240
TGGCCATGAT ACTAAATACA ATTGTCATTT GATGGAGAAG ATTGAAAAGG GAAATATGCT	300

ACACAGAGCA TTCAGTGTGT TCTTGTTCAA CTCGAAATAT GAATTACTCC TTCAGCAACG 360
 TTCTGCAACC AAGGTGACTT TCCCTTTGGT ATGGACAAAC ACGTGTGCA GCCATCCACT 420
 ATACAGGGAG AGTGAGCTTA TTGACGAAAA CGCCCTTGGG GTGAGGAATG CTGCACAGAG 480
 GAAGCTCCTG GATGAACTCG GCATCCCTGG AGCAGATGTT CCGGTTGATG AGTTCACTCC 540
 ATTGGGTCGC ATTCTATACA AGGCCGCATC GGATGGAAAG TGGGGAGAAC ATGAACTTGA 600
 TTACCTGCTG TTTATGGTAC GTGATGTTGG TTTGGATCCG AACCCAGATG AAGTGAAAGA 660
 TGTAATAATAT GTGAACCGGG AAGAGCTGAA GGAATTGGTA AGGAAGGCGG ATGCTGGTGA 720
 AGAGGGTGTG AAGCTGTCCC CGTGGTTCAA ATTGATTGTC GATAATTTCT TGTTCAGTG 780
 GTGGGATCGA CTCCATAAGG GAACCCTAAC CGAAGCTATT GATATGAAAA CAATCCACAA 840
 ACTCACATAA AAACACTACA CTAGTAGGAG AGAGGATTAT ATGAGATATT TGTTATATGT 900
 GAAATTGAAA TTCAGATGAA TGCTTGATT TATTTCTATT TGGACAACT TCAACTTCTT 960
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<210> 32

<211> 988

<212> DNA

<213> *Lactuca sativa*

<400> 32

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 CTGTCCAGAG ACGTCTCATG TTTGATGATG AATGCATTTT GGTGATGAA AATGACAATG 180
 TTCTTGGGCA TGATACCAA TACAATTGTC ACTTGATGGA GAAGATTGAG AAAGATAATT 240
 TGCTTCATAG AGCATTCACT GTATTTTTAT TCAATTCAAA ATACGAATTA CTCCTTCAGC 300
 AAAGGTCAGA AACCAAGGTG ACATTTCCCT TGGTATGGAC AAACACCTGT TGCAGCCATC 360
 CACTATACAG AGAATCGGAG TTAATTCCTG AAAATGCCCT TGGGGTCAGA AATGCTGCAC 420
 AGAGGAAGCT TCTAGATGAA CTCGGTATCC CTGCTGAAGA TGTTCCAGTT GATGAGTTCA 480
 CAACTTTAGG TCGCATGTTG TACAAGGCTC CATCTGATGG AAAATGGGGT GAACATGAAG 540
 TTGATTACCT ACTCTTCCTC GTGCGTGACG TTGCCGTGAA CCCAAACCTT GATGAGGTGG 600
 CGGACATTAG ATACGTGAAC CAAGAAGAGT TAAAAGAGTT ACTAAGGAAG GCGGATGCGG 660
 GTGAGGAGGG TTTGAAATTG TCCCCATGGT TTAGGCTAGT GGTGGACAAC TTCTTGTTCA 720
 AATGGTGGGA TCATGTCCAA AAGGGGACAC TCAATGAAGC AATTGACATG AAAACCATTC 780
 ATAAGTTGAT ATGAAAAATG GTTAATATTT ATGGTGGTGG TTTGGAGCTA ATAATTTGTG 840
 TGTTCAAGTC TCGGTCCTTC TTTTTTTAAC GTTTTTTTTT TTTCTTTTAT TGGGAGTGTT 900
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CGTTAATTTA AAAAAAAAAA AAAAAAAAAA

988

<210> 33

<211> 1874

<212> DNA

<213> Chlamydomonas reinhardtii

<400> 33

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CTACCGAGCA GCATTGCTTT AGATCGCTTT GATGTCATAA ACTCCCACTT ATATGAGATC	180
CAGTTTCATC GAGCCCAAGC CCAGAGCGCA ACCTGTCTTA AGCCGCGGCA GGGCGTCCAT	240
GCGCCTCGCG CAAAGCCGTG CTCTCGTTGC GCGTGTCAGC TCCGCCCTGT GGCCGGGAGC	300
AGGACTTTCA CAGGCTCAA GCGTTGCGGT GCGAATGGCG AGTTCGTCAA CCTGGGAAGG	360
CACGGGCCTG AGCCAGGATG ACTTCATGCA GCGGGACGAG TGCTTGGTGG TGGACGAGCA	420
GGACCGGCTG CTAGGCACCG CCAACAAGTA CCACTGCCAC CGCTTCGAGG CGGCCAAGGG	480
CCAGCCCTGC GGCCGCCTGC ACCGCGCCTT CTCCGTGTTT CTGTTCAGCC CCGACGGCCC	540
ACTGCTGCTG CAGCAGCGCG CAGCCAGCAA GGTGACGTTT CCGGGTGTGT GGACCAACAC	600
CTGCTGCTCG CACCCGCTGG CGGGCCAGGC GCCGGACGAG GTGGACCTGC CGGCGGCGGT	660
AGCCTCGGGC CAGGTGCCGG GCATCAAGGC GGCGGCGGTG CGCAAGCTGC AGCACGAGCT	720
GGGGATACCG CCGGAGCAGG TTCCCGCCTC CTCCTTCTCC TTCCTCACGC GTCTGCACTA	780
CTGCGCCGCC GACACCGCCA CGCACGGCCC GCGGCGGAG TGGGGCGAGC ACGAGGTGGA	840
CTACGTGCTG TTCGTGCGGC CGCAGCAGCC CGTCAGCCTG CAGCCCAACC CAGACGAGGT	900
GGACGCCACG CGCTACGTGA CGCTGCCGGA GCTTCAGTCC ATGATGGCGG ACCCCGGCCT	960
CAGCTGGAGC CCCTGGTTCC GCATCCTGGC CACACAGCCC GCCTTCCTGC CCGCCTGGTG	1020
GGGCGACCTG AAGCGGCGCT GCGGCCCGGG CGGCAGCCGA CTGTGCGACT GGGGCACCAT	1080
CCACCGCGTC ATGTGAAGAA AAAGGGGAAG CAGGGGCGGG AGCGGGGGAT GAATGGGAAT	1140
GTGAATGCGA TTGTGATGCG GCGTGGGATG AGGTCTGAAG ACAGGGGGAA AATCGGGGGG	1200
CGGGCGTGAG CGTGTGTGTA CGTGAGCGAC AAAGCCGGGA GGCGGACCGC GCGATGGGTA	1260
CATGTGTGTG CGGAGGGTCG GTGGGTGCGT CGGTTGCGCG GCATAGCGTG TTGTGTGTGT	1320
GCGGCTGCAG GGGTATGTGG GCACCCGGGC ACGGAGGAGA AGGCACACGC AGGTGGCGCG	1380
GAGGTGTGTC AGGGGCCATG GCGGGGCCTC ACTCCTGGTC GTGCCCAGTG GTCTCGTGGG	1440
CAGAGTGGCA GGGGCTGCAC CCATATGAGC GGCGCACTGC CGCGCTGGGC TAAGTCCTTA	1500
TCACTTGGTG AGGTGGGGCG AGGTGGCTGT GGGCGGCGGG CGCAGTGGCA GAAGGACACG	1560
GTGTGTGAGC GGTGGAGCTC TGGCCGTGCC GGCCGTGAGG GGCGGATAGC GATATGACGT	1620

TGTGCTTGGC	CGCTGTAATG	CGGGAGAATG	TGCAGGCCGC	GAGAAGCGGG	CGGTGGCAGG	1680
AGGCCGCAGG	CTGCAGCACC	CGTTGGGGAG	GTGCCACCTG	CAGGCGCGGC	GCCGGGCGGG	1740
CCTGAGTAAT	GGGCGCCTGA	GTAGTGGCGG	CCACAGGAGG	CGCAGGAGGC	AGCAGCAGGA	1800
GGACGAGCTG	GAGGGACCCG	TTGGCAACCC	AAGGTTGCGC	GTGTAACATA	GTGGCCATAC	1860
AAAAAAAAAA	AAAA					1874

<210> 34

<211> 954

<212> DNA

<213> *Tagetes erecta*

<400> 34

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ACAATGTGGT	GGGACATGAT	ACCAAATACA	ATTGTCACCT	GATGGAGAAG	ATTGAAACAG	180
GTAAAATGCT	GCACAGAGCA	TTCAGCGTTT	TTCTATTCAA	TTCAAATAC	GAGTTACTTC	240
TTCAGCAACG	GTCTGCAACC	AAGGTGACAT	TTCTTTTAGT	ATGGACCAAC	ACCTGTTGCA	300
GCCATCCACT	CTACAGAGAA	TCCGAGCTTG	TTCCCGAAAA	CGCCCTTGGA	GTAAGAAATG	360
CTGCACAGAG	GAAGCTGTTG	GATGAACTCG	GTATCCCTGC	TGAAGATGTT	CCCGTTGATC	420
AGTTTACTCC	TTTAGGTTCG	ATGCTCTACA	AGGCTCCATC	TGATGGAAAG	TGGGGAGAAC	480
ATGAACTTGA	CTACCTACTT	TTCATAGTGA	GAGACGTTGC	TGTAAACCCG	AACCCAGATG	540
AAGTGGCGGA	TATCAAATAT	GTGACCAGAA	GAGTTAAAGG	AGCTGCTAAG	GAAAGCAGAT	600
GCGGGGGAGG	AGGGTTTGAA	GCTGTCTCCA	TGGTTCAGGT	TAGTGGTTGA	TAACTTCTTG	660
TTCAAGTGGT	GGGATCATGT	GCAAAGGGT	ACACTCACTG	AAGCAATTGA	TATGAAAACC	720
ATACACAAGC	TGATATAGAA	ACACACCCTC	AACCGAAAAG	TTCAAGCCTA	ATAATTCGGG	780
TTGGGTCGGG	TCTACCATCA	ATTGTTTTTT	TCTTTTAAGA	AGTTTTAATC	TCTATTTGAG	840
CATGTTGATT	CTTGCTTTTT	GTGTGTAAGA	TTTTGGGTTT	CGTTTCAGTT	GTAATAATGA	900
ACCATTGATG	GTTTGCAATT	TCAAGTTCCT	ATCGACATGT	AGTGATCTAA	AAAA	954

<210> 35

<211> 1031

<212> DNA

<213> *Oryza sativa*

<400> 35

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GAATGCATTT	TGGTGGATGA	ACAAGACAAT	GTTGTTGGCC	ATGAATCAAA	ATATAACTGC	180
CATCTGATGG	AAAAAATCGA	ATCTGAAAAT	CTACTTCATA	GGGCTTTCAG	TGTATTCCTG	240

TTCAACTCAA AATATGAACT CCTACTCCAG CAACGATCTG CAACAAAGGT TACATTTCTT 300
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 GAAAACTACC TTGGTGTTAG AAATGCTGCT CAGAGGAAGC TCTTGGATGA GCTGGGCATC 420
 CCAGCTGAAG ATGTGCCAGT TGACCAATTC ACCCCTCTTG GTCGGATGCT TTACAAGGCC 480
 CCATCTGATG GAAAATGGGG TGAACACGAG CTTGACTACC TGCTGTTTCAT CGTCCGCGAC 540
 GTGAAGGTAG TCCCGAACCC GGACGAAGTG GCCGATGTGA AATACGTGAG CCGTGAGCAG 600
 CTGAAGGAGC TCATCCGCAA AGCGGACGCC GGAGAGGAAG GCCTGAAGCT GTCTCCCTGG 660
 TTCCGGCTGG TTGTTGACAA CTTCTCATG GGCTGGTGGG ATCACGTCGA GAAAGGCACC 720
 CTCAACGAGG CCGTGGACAT GGAGACCATC CACAAGCTGA AGTAAGGACT GCGATGTTGT 780
 GGCTGGAAAG AATGATCCTG AAGACTCTGT TCTTGTGCTG CTGCATATTA CTCTTACCAG 840
 GGAAGTTGCA GAAGTCAGAA GAAGCTTTTG TATGTTTCTG GGTGGGAGC TTGGAAGTGT 900
 TGGGCTCTGC TGAAGTGAAG ATTCCTTAT AGAGTGTCTA TGTTAATTTA GCAAACCTCT 960
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 GTTTATTTGC T 1031

<210> 36

<211> 232

<212> PRT

<213> *Tagetes erecta*

<400> 36

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 20 25 30

Asp Thr Lys Tyr Asn Cys His Leu Met Glu Lys Ile Glu Thr Gly Lys
 35 40 45

Met Leu His Arg Ala Phe Ser Val Phe Leu Phe Asn Ser Lys Tyr Glu
 50 55 60

Leu Leu Leu Gln Gln Arg Ser Ala Thr Lys Val Thr Phe Pro Leu Val
 65 70 75 80

Trp Thr Asn Thr Cys Cys Ser His Pro Leu Tyr Arg Glu Ser Glu Leu
 85 90 95

Val Pro Glu Asn Ala Leu Gly Val Arg Asn Ala Ala Gln Arg Lys Leu
 100 105 110

Leu Asp Glu Leu Gly Ile Pro Ala Glu Asp Val Pro Val Asp Gln Phe
 115 120 125

Thr Pro Leu Gly Arg Met Leu Tyr Lys Ala Pro Ser Asp Gly Lys Trp
 130 135 140

Gly Glu His Glu Leu Asp Tyr Leu Leu Phe Ile Val Arg Asp Val Ala
 145 150 155 160
 Val Asn Pro Asn Pro Asp Glu Val Ala Asp Ile Lys Tyr Val Ser His
 165 170 175
 Glu Glu Leu Lys Glu Leu Leu Arg Lys Ala Asp Ala Gly Glu Glu Gly
 180 185 190
 Leu Lys Leu Ser Pro Trp Phe Arg Leu Val Val Asp Asn Phe Leu Phe
 195 200 205
 Lys Trp Trp Asp His Val Gln Lys Gly Thr Leu Thr Glu Ala Ile Asp
 210 215 220
 Met Lys Thr Ile His Lys Leu Ile
 225 230
 <210> 37
 <211> 280
 <212> PRT
 <213> Lactuca Sativa
 <400> 37
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 20 25 30
 Pro Ser Leu Ala Ala Ala Ser Val Phe Leu His Pro Leu Ser Ser Ala
 35 40 45
 Ala Met Gly Asp Ser Ser Met Asp Ala Val Gln Arg Arg Leu Met Phe
 50 55 60
 Asp Asp Glu Cys Ile Leu Val Asp Glu Asn Asp Lys Val Val Gly His
 65 70 75 80
 Asp Thr Lys Tyr Asn Cys His Leu Met Glu Lys Ile Glu Lys Gly Asn
 85 90 95
 Met Leu His Arg Ala Phe Ser Val Phe Leu Phe Asn Ser Lys Tyr Glu
 100 105 110
 Leu Leu Leu Gln Gln Arg Ser Ala Thr Lys Val Thr Phe Pro Leu Val
 115 120 125
 Trp Thr Asn Thr Cys Cys Ser His Pro Leu Tyr Arg Glu Ser Glu Leu
 130 135 140
 Ile Asp Glu Asn Ala Leu Gly Val Arg Asn Ala Ala Gln Arg Lys Leu
 145 150 155 160
 Leu Asp Glu Leu Gly Ile Pro Gly Ala Asp Val Pro Val Asp Glu Phe
 165 170 175
 Thr Pro Leu Gly Arg Ile Leu Tyr Lys Ala Ala Ser Asp Gly Lys Trp
 180 185 190
 Gly Glu His Glu Leu Asp Tyr Leu Leu Phe Met Val Arg Asp Val Gly

195					200					205					
Leu	Asp	Pro	Asn	Pro	Asp	Glu	Val	Lys	Asp	Val	Lys	Tyr	Val	Asn	Arg
210						215					220				
Glu	Glu	Leu	Lys	Glu	Leu	Val	Arg	Lys	Ala	Asp	Ala	Gly	Glu	Glu	Gly
225					230					235					240
Val	Lys	Leu	Ser	Pro	Trp	Phe	Lys	Leu	Ile	Val	Asp	Asn	Phe	Leu	Phe
			245						250					255	
Gln	Trp	Trp	Asp	Arg	Leu	His	Lys	Gly	Thr	Leu	Thr	Glu	Ala	Ile	Asp
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Met	Lys	Thr	Ile	His	Lys	Leu	Thr								
	275						280								
<210> 38															
<211> 229															
<212> PRT															
<213> Lactuca Sativa															
<400> 38															
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Asp	Asp	Glu	Cys	Ile	Leu	Val	Asp	Glu	Asn	Asp	Asn	Val	Leu	Gly	His
		20						25					30		
Asp	Thr	Lys	Tyr	Asn	Cys	His	Leu	Met	Glu	Lys	Ile	Glu	Lys	Asp	Asn
		35					40					45			
Leu	Leu	His	Arg	Ala	Phe	Ser	Val	Phe	Leu	Phe	Asn	Ser	Lys	Tyr	Glu
	50					55					60				
Leu	Leu	Leu	Gln	Gln	Arg	Ser	Glu	Thr	Lys	Val	Thr	Phe	Pro	Leu	Val
65					70					75					80
Trp	Thr	Asn	Thr	Cys	Cys	Ser	His	Pro	Leu	Tyr	Arg	Glu	Ser	Glu	Leu
				85					90					95	
Ile	Pro	Glu	Asn	Ala	Leu	Gly	Val	Arg	Asn	Ala	Ala	Gln	Arg	Lys	Leu
			100					105					110		
Leu	Asp	Glu	Leu	Gly	Ile	Pro	Ala	Glu	Asp	Val	Pro	Val	Asp	Glu	Phe
	115						120					125			
Thr	Thr	Leu	Gly	Arg	Met	Leu	Tyr	Lys	Ala	Pro	Ser	Asp	Gly	Lys	Trp
	130					135					140				
Gly	Glu	His	Glu	Val	Asp	Tyr	Leu	Leu	Phe	Leu	Val	Arg	Asp	Val	Ala
145					150					155					160
Val	Asn	Pro	Asn	Pro	Asp	Glu	Val	Ala	Asp	Ile	Arg	Tyr	Val	Asn	Gln
				165					170					175	
Glu	Glu	Leu	Lys	Glu	Leu	Leu	Arg	Lys	Ala	Asp	Ala	Gly	Glu	Glu	Gly
			180					185					190		
Leu	Lys	Leu	Ser	Pro	Trp	Phe	Arg	Leu	Val	Val	Asp	Asn	Phe	Leu	Phe
		195					200					205			

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 Met Lys Thr Ile His
 225
 <210> 39
 <211> 295
 <212> PRT
 <213> Adonis Palaestina
 <400> 39
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 Thr Lys Thr Leu Ser Ala Ser Cys Ser Ser Pro Ala Val His Leu Gln
 20 25 30
 Gln Arg Cys Arg Thr Leu Ser Ile Ser Ser Ser Ile Thr Asn Ser Pro
 35 40 45
 Arg Arg Gly Leu Asn Arg Leu Phe Ala Ser Thr Ser Thr Met Gly Glu
 50 55 60
 Val Ala Asp Ala Gly Met Asp Ala Val Gln Lys Arg Leu Met Phe Asp
 65 70 75 80
 Asp Glu Cys Ile Leu Val Asp Glu Asn Asp Lys Val Val Gly Tyr Asp
 85 90 95
 Ser Lys Tyr Asn Cys His Leu Met Glu Lys Ile Glu Ala Glu Asn Leu
 100 105 110
 Leu His Arg Ala Phe Ser Val Phe Leu Phe Asn Ser Lys Tyr Glu Leu
 115 120 125
 Leu Leu Gln Gln Arg Ser Ala Thr Lys Val Thr Phe Pro Leu Val Trp
 130 135 140
 Thr Asn Thr Cys Cys Ser His Pro Leu Phe Arg Asp Ser Glu Leu Ile
 145 150 155 160
 Glu Glu Asn Phe Leu Gly Val Arg Asn Ala Ala Gln Arg Lys Leu Leu
 165 170 175
 Asp Glu Leu Gly Ile Pro Ala Glu Asp Val Pro Val Asp Glu Phe Thr
 180 185 190
 Pro Leu Gly Arg Ile Leu Tyr Lys Ala Pro Ser Asp Gly Lys Trp Gly
 195 200 205
 Glu His Glu Leu Asp Tyr Leu Leu Phe Ile Val Arg Asp Val Lys Tyr
 210 215 220
 Asp Pro Asn Pro Asp Glu Val Ala Asp Ala Lys Tyr Val Asn Arg Glu
 225 230 235 240
 Glu Leu Lys Glu Ile Leu Arg Lys Ala Asp Ala Gly Glu Glu Gly Ile
 245 250 255
 Lys Leu Ser Pro Trp Phe Arg Leu Val Val Asp Asn Phe Leu Phe Lys

260 265 270
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 275 280 285
 Lys Thr Ile His Lys Leu Thr .
 290 295
 <210> 40
 <211> 234
 <212> PRT
 <213> Adonis Palaestina
 <400> 40
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 20 25 30
 Gly His Asp Ser Lys Tyr Asn Cys His Leu Met Glu Lys Ile Glu Ala
 35 40 45
 Glu Asn Leu Leu His Arg Ala Phe Ser Val Phe Leu Phe Asn Ser Lys
 50 55 60
 Tyr Glu Leu Leu Leu Gln Gln Arg Ser Ala Thr Lys Val Thr Phe Pro
 65 70 75 80
 Leu Val Trp Thr Asn Thr Cys Cys Ser His Pro Leu Phe Arg Asp Ser
 85 90 95
 Glu Leu Ile Glu Glu Asn Tyr Leu Gly Val Arg Asn Ala Ala Gln Arg
 100 105 110
 Lys Leu Leu Asp Glu Leu Gly Ile Pro Ala Glu Asp Val Pro Val Asp
 115 120 125
 Glu Phe Thr Pro Leu Gly Arg Ile Leu Tyr Lys Ala Pro Ser Asp Gly
 130 135 140
 Lys Trp Gly Glu His Glu Leu Asp Tyr Leu Leu Phe Ile Val Arg Asp
 145 150 155 160
 Val Lys Tyr Asp Pro Asn Pro Asp Glu Val Ala Asp Ala Lys Tyr Val
 165 170 175
 Asn Arg Glu Glu Leu Arg Glu Ile Leu Arg Lys Ala Asp Ala Gly Glu
 180 185 190
 Glu Gly Leu Lys Leu Ser Pro Trp Phe Arg Leu Val Val Asp Asn Phe
 195 200 205
 Leu Phe Lys Trp Trp Asp His Val Glu Gln Gly Thr Ile Lys Glu Val
 210 215 220
 Ala Asp Met Lys Thr Ile His Lys Leu Thr
 225 230
 <210> 41
 <211> 238

<212> PRT
<213> Oryza Sativa

<400> 41

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          20           25           30
Asp Asn Val Val Gly His Glu Ser Lys Tyr Asn Cys His Leu Met Glu
          35           40           45
Lys Ile Glu Ser Glu Asn Leu Leu His Arg Ala Phe Ser Val Phe Leu
          50           55           60
Phe Asn Ser Lys Tyr Glu Leu Leu Leu Gln Gln Arg Ser Ala Thr Lys
          65           70           75           80
Val Thr Phe Pro Leu Val Trp Thr Asn Thr Cys Cys Ser His Pro Leu
          85           90           95
Tyr Arg Glu Ser Glu Leu Ile Gln Glu Asn Tyr Leu Gly Val Arg Asn
          100          105          110
Ala Ala Gln Arg Lys Leu Leu Asp Glu Leu Gly Ile Pro Ala Glu Asp
          115          120          125
Val Pro Val Asp Gln Phe Thr Pro Leu Gly Arg Met Leu Tyr Lys Ala
          130          135          140
Pro Ser Asp Gly Lys Trp Gly Glu His Glu Leu Asp Tyr Leu Leu Phe
          145          150          155          160
Ile Val Arg Asp Val Lys Val Val Pro Asn Pro Asp Glu Val Ala Asp
          165          170          175
Val Lys Tyr Val Ser Arg Glu Gln Leu Lys Glu Leu Ile Arg Lys Ala
          180          185          190
Asp Ala Gly Glu Glu Gly Leu Lys Leu Ser Pro Trp Phe Arg Leu Val
          195          200          205
Val Asp Asn Phe Leu Met Gly Trp Trp Asp His Val Glu Lys Gly Thr
          210          215          220
Leu Asn Glu Ala Val Asp Met Glu Thr Ile His Lys Leu Lys
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<210> 42
<211> 233
<212> PRT
<213> Arabidopsis thaliana

<400> 42

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          20           25           30

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Gly His Asp Thr Lys Tyr Asn Cys His Leu Met Glu Lys Ile Glu Ala
 35 40 45
 Glu Asn Leu Leu His Arg Ala Phe Ser Val Phe Leu Phe Asn Ser Lys
 50 55 60
 Tyr Glu Leu Leu Leu Gln Gln Arg Ser Lys Thr Lys Val Thr Phe Pro
 65 70 75 80
 Leu Val Trp Thr Asn Thr Cys Cys Ser His Pro Leu Tyr Arg Glu Ser
 85 90 95
 Glu Leu Ile Glu Glu Asn Val Leu Gly Val Arg Asn Ala Ala Gln Arg
 100 105 110
 Lys Leu Phe Asp Glu Leu Gly Ile Val Ala Glu Asp Val Pro Val Asp
 115 120 125
 Glu Phe Thr Pro Leu Gly Arg Met Leu Tyr Lys Ala Pro Ser Asp Gly
 130 135 140
 Lys Trp Gly Glu His Glu Val Asp Tyr Leu Leu Phe Ile Val Arg Asp
 145 150 155 160
 Val Lys Leu Gln Pro Asn Pro Asp Glu Val Ala Glu Ile Lys Tyr Val
 165 170 175
 Ser Arg Glu Glu Leu Lys Glu Leu Val Lys Lys Ala Asp Ala Gly Asp
 180 185 190
 Glu Ala Val Lys Leu Ser Pro Trp Phe Arg Leu Val Val Asp Asn Phe
 195 200 205
 Leu Met Lys Trp Trp Asp His Val Glu Lys Gly Thr Ile Thr Glu Ala
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 Ala Asp Met Lys Thr Ile His Lys Leu
 225 230

<210> 43

<211> 293

<212> PRT

<213> Haematococcus pluvialis

<400> 43

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 20 25 30
 Arg Ser Met Gln Leu Leu Ser Glu Asp Arg Thr Asp His Met Arg Gly
 35 40 45
 Ala Ser Thr Trp Ala Gly Gly Gln Ser Gln Asp Glu Leu Met Leu Lys
 50 55 60
 Asp Glu Cys Ile Leu Val Asp Val Glu Asp Asn Ile Thr Gly His Ala
 65 70 75 80
 Ser Lys Leu Glu Cys His Lys Phe Leu Pro His Gln Pro Ala Gly Leu

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<210> 44
<211> 304
<212> PRT
<213> Haematococcus pluvialis
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Arg Ser Met Gln Met Thr Leu Met Gln Pro Ser Ile Ser Ala Asn Leu
35 40 45

Ala Gly Gly Gln Ser Gln Asp Glu Leu Met Leu Lys Asp Glu Cys Ile
65 70 75 80

Leu Val Asp Val Glu Asp Asn Ile Thr Gly His Ala Ser Lys Leu Glu
 85 90 95
 Cys His Lys Phe Leu Pro His Pro Ala Gly Leu Leu His Arg Ala Phe
 100 105 110
 Ser Val Phe Leu Phe Asp Asp Gln Gly Arg Leu Leu Leu Gln Gln Arg
 115 120 125
 Ala Arg Ser Lys Ile Thr Phe Pro Ser Val Trp Thr Asn Thr Cys Cys
 130 135 140
 Ser His Pro Leu His Gly Gln Thr Pro Asp Glu Val Asp Gln Leu Ser
 145 150 155 160
 Gln Val Ala Asp Gly Thr Val Pro Gly Ala Lys Ala Ala Ala Ile Arg
 165 170 175
 Lys Leu Glu His Glu Leu Gly Ile Pro Ala His Gln Leu Pro Ala Ser
 180 185 190
 Ala Phe Arg Phe Leu Thr Arg Leu His Tyr Cys Ala Ala Asp Val Gln
 195 200 205
 Pro Ala Ala Thr Gln Ser Ala Leu Trp Gly Glu His Glu Met Asp Tyr
 210 215 220
 Ile Leu Phe Ile Arg Ala Asn Val Thr Leu Ala Pro Asn Pro Asp Glu
 225 230 235 240
 Val Asp Glu Val Arg Tyr Val Thr Gln Glu Glu Leu Arg Gln Met Met
 245 250 255
 Gln Pro Asp Asn Gly Leu Gln Trp Ser Pro Trp Phe Arg Ile Ile Ala
 260 265 270
 Ala Arg Phe Leu Glu Arg Trp Trp Ala Asp Leu Asp Ala Ala Leu Asn
 275 280 285
 Thr Asp Lys His Glu Asp Trp Gly Thr Val His His Ile Asn Glu Ala
 290 295 300
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 <211> 307
 <212> PRT
 <213> Chlamydomonas reinhardtii
 <400> 45
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 20 25 30
 Ala Arg Val Ser Ser Ala Leu Trp Pro Gly Ala Gly Leu Ser Gln Ala
 35 40 45
 Gln Ser Val Ala Val Arg Met Ala Ser Ser Ser Thr Trp Glu Gly Thr
 50 55 60
 Gly Leu Ser Gln Asp Asp Phe Met Gln Arg Asp Glu Cys Leu Val Val

WO 99/63055

65 70 75 80
 Asp Glu Gln Asp Arg Leu Leu Gly Thr Ala Asn Lys Tyr Asp Cys His
 85 90 95
 Arg Phe Glu Ala Ala Lys Gly Gln Pro Cys Gly Arg Leu His Arg Ala
 100 105 110
 Phe Ser Val Phe Leu Phe Ser Pro Asp Gly Arg Leu Leu Leu Gln Gln
 115 120 125
 Arg Ala Ala Ser Lys Val Thr Phe Pro Gly Val Trp Thr Asn Thr Cys
 130 135 140
 Cys Ser His Pro Leu Ala Gly Gln Ala Pro Asp Glu Val Asp Leu Pro
 145 150 155 160
 Ala Ala Val Ala Ser Gly Gln Val Pro Gly Ile Lys Ala Ala Ala Val
 165 170 175
 Arg Lys Leu Gln His Glu Leu Gly Ile Pro Pro Glu Gln Val Pro Ala
 180 185 190
 Ser Ser Phe Ser Phe Leu Thr Arg Leu His Tyr Cys Ala Ala Asp Thr
 195 200 205
 Ala Thr His Gly Pro Ala Ala Glu Trp Gly Glu His Glu Val Asp Tyr
 210 215 220
 Val Leu Phe Val Arg Pro Gln Gln Pro Val Ser Leu Gln Pro Asn Pro
 225 230 235 240
 Asp Glu Val Asp Ala Thr Arg Tyr Val Thr Leu Pro Glu Leu Gln Ser
 245 250 255
 Met Met Ala Asp Pro Gly Leu Ser Trp Ser Pro Trp Phe Arg Ile Leu
 260 265 270
 Ala Thr Gln Pro Ala Phe Leu Pro Ala Trp Trp Gly Asp Leu Lys Arg
 275 280 285
 Arg Trp Arg Pro Gly Gly Ser Arg Leu Ser Asp Trp Gly Thr Ile His
 290 295 300
 Arg Val Met
 305

<210> 46
 <211> 1848
 <212> DNA
 <213> Adonis palaestina

<400> 46
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 ACTACTGGT GTTCGCAACC TCATCTCTTC TTGCCCTGTC TGGACTTTTG GAACAAGAAA 180
 CCTTAGTAGT TCAAACTAG CTTATAACAT ACATCGATAT GGTTCTTCTT GTAGAGTAGA 240

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 TTTTGTGGAC GAGGAGGATT TTATCAAAGC TGGTGGTTCT GAGCTTTTGT TTGTCCAAAT 360
 GCAGCAAACA AAGTCTATGG AGAAACAGGC CAAGCTCGCC GATAAGTTGC CACCAATACC 420
 TTTTCGGAGAA TCTGTGATGG ACTTGTTTGT AATAGGTTGT GGACCTGCTG GTCTTTCACT 480
 GGCTGCAGAA GCTGCTAAGC TAGGCTTGAA AGTTGGCCTT ATTGGTCCTG ATCTTCCTTT 540
 TACAAATAAT TATGGTGTGT GGAAGACGA GTTCAAAGAT CTTGGACTTG AACGTTGTAT 600
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 TCGTGCATAT GGACGAGTTA GCCGGCATT TCTGCATGAA GAGTTGCTGA AAAGGTGTGT 720
 CGAGTCAGGT GTATCATATC TGAATTCTAA AGTGGAAAGG ATCACTGAAG CTGGTGATGG 780
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 CCAAAGTCTT TATGGTGTGG AGGTTGAGGT GGAGAACAAT CCATACGATC CCAACTTAAT 960
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 TTTGGCCTCA AAAGATGCCA TGCCTTTCGA TCTACTGAAG AGAAAACTAA TGTCACGATT 1140
 GAAGACTCTG GGTATCCAAG TTACAAAAAT TTATGAAGAG GAATGGTCTT ATATTCCTGT 1200
 TGGGGGTTCT TTACCAAACA CAGAGCAAAA GAACCTAGCA TTTGGTGCTG CAGCAAGCAT 1260
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 TTCTGTAATT GCAAAGATTT TGAAGCAAGA TAACTCTGCA TATGTGGTTT CTGGACAAAG 1380
 CAGTGCAAGT AACATTTCAA TGCAAGCATG GAGCAGTCTT TGGCCAAAGG AGCGAAAACG 1440
 TCAAAGAGCA TTCTTTCTTT TCGGGTTAGA GCTTATTGTG CAGCTAGATA TTGAAGCAAC 1500
 CAGAACGTTT TTTAGAACCT TCTCCGCTT GCCAACTGG ATGTGGTGGG GTTTCCTTGG 1560
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<210> 47

<211> 529

<212> PRT

<213> Adonis palaestina

<400> 47

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His Arg Tyr Gly Ser Ser Cys Arg Val Asp Phe Gln Val Arg Ala Asp	35	40	45
Gly Gly Ser Gly Ser Arg Ser Ser Val Ala Tyr Lys Glu Gly Phe Val	50	55	60
Asp Glu Glu Asp Phe Ile Lys Ala Gly Gly Ser Glu Leu Leu Phe Val	65	70	75
Gln Met Gln Gln Thr Lys Ser Met Glu Lys Gln Ala Lys Leu Ala Asp	85	90	95
Lys Leu Pro Pro Ile Pro Phe Gly Glu Ser Val Met Asp Leu Val Val	100	105	110
Ile Gly Cys Gly Pro Ala Gly Leu Ser Leu Ala Ala Glu Ala Ala Lys	115	120	125
Leu Gly Leu Lys Val Gly Leu Ile Gly Pro Asp Leu Pro Phe Thr Asn	130	135	140
Asn Tyr Gly Val Trp Glu Asp Glu Phe Lys Asp Leu Gly Leu Glu Arg	145	150	155
Cys Ile Glu His Ala Trp Lys Asp Thr Ile Val Tyr Leu Asp Asn Asp	165	170	175
Ala Pro Val Leu Ile Gly Arg Ala Tyr Gly Arg Val Ser Arg His Leu	180	185	190
Leu His Glu Glu Leu Leu Lys Arg Cys Val Glu Ser Gly Val Ser Tyr	195	200	205
Leu Asp Ser Lys Val Glu Arg Ile Thr Glu Ala Gly Asp Gly His Ser	210	215	220
Leu Val Val Cys Glu Asn Glu Ile Phe Ile Pro Cys Arg Leu Ala Thr	225	230	235
Val Ala Ser Gly Ala Ala Ser Gly Lys Leu Leu Glu Tyr Glu Val Gly	245	250	255
Gly Pro Arg Val Cys Val Gln Thr Ala Tyr Gly Val Glu Val Glu Val	260	265	270
Glu Asn Asn Pro Tyr Asp Pro Asn Leu Met Val Phe Met Asp Tyr Arg	275	280	285
Asp Tyr Met Gln Gln Lys Leu Gln Cys Ser Glu Glu Glu Tyr Pro Thr	290	295	300
Phe Leu Tyr Val Met Pro Met Ser Pro Thr Arg Leu Phe Phe Glu Glu	305	310	315
Thr Cys Leu Ala Ser Lys Asp Ala Met Pro Phe Asp Leu Leu Lys Arg	325	330	335

Lys Leu Met Ser Arg Leu Lys Thr Leu Gly Ile Gln Val Thr Lys Val
 340 345 350
 Tyr Glu Glu Glu Trp Ser Tyr Ile Pro Val Gly Gly Ser Leu Pro Asn
 355 360 365
 Thr Glu Gln Lys Asn Leu Ala Phe Gly Ala Ala Ala Ser Met Val His
 370 375 380
 Pro Ala Thr Gly Tyr Ser Val Val Arg Ser Leu Ser Glu Ala Pro Lys
 385 390 395 400
 Tyr Ala Ser Val Ile Ala Lys Ile Leu Lys Gln Asp Asn Ser Ala Tyr
 405 410 415
 Val Val Ser Gly Gln Ser Ser Ala Val Asn Ile Ser Met Gln Ala Trp
 420 425 430
 Ser Ser Leu Trp Pro Lys Glu Arg Lys Arg Gln Arg Ala Phe Phe Leu
 435 440 445
 Phe Gly Leu Glu Leu Ile Val Gln Leu Asp Ile Glu Ala Thr Arg Thr
 450 455 460
 Phe Phe Arg Thr Phe Phe Arg Leu Pro Thr Trp Met Trp Trp Gly Phe
 465 470 475 480
 Leu Gly Ser Ser Leu Ser Ser Phe Asp Leu Val Leu Phe Ser Met Tyr
 485 490 495
 Met Phe Val Leu Ala Pro Asn Ser Met Arg Met Ser Leu Val Arg His
 500 505 510
 Leu Leu Ser Asp Pro Ser Gly Ala Val Met Val Arg Ala Tyr Leu Glu
 515 520 525

Arg

<210> 48
 <211> 378
 <212> PRT
 <213> Potato

<400> 48
 Asp Glu Phe Lys Asp Leu Gly Leu Gln Ala Cys Ile Glu His Val Trp
 1 5 10 15
 Arg Asp Thr Ile Val Tyr Leu Asp Asp Asp Asp Pro Ile Leu Ile Gly
 20 25 30
 Arg Ala Tyr Gly Arg Val Ser Arg His Leu Leu His Glu Glu Leu Leu
 35 40 45
 Lys Arg Cys Val Glu Ala Gly Val Leu Tyr Leu Asn Ser Lys Val Asp
 50 55 60
 Arg Ile Val Glu Ala Thr Asn Gly His Ser Leu Val Glu Cys Glu Gly
 65 70 75 80
 Asp Val Val Ile Pro Cys Arg Phe Val Thr Val Ala Ser Gly Ala Ala
 85 90 95

Ser Gly Lys Phe Leu Gln Tyr Glu Leu Gly Gly Pro Arg Val Ser Val
 100 105 110
 Gln Thr Ala Tyr Gly Val Glu Val Glu Val Asp Asn Asn Pro Phe Asp
 115 120 125
 Pro Ser Leu Met Val Phe Met Asp Tyr Arg Asp Tyr Val Arg His Asp
 130 135 140
 Ala Gln Ser Leu Glu Ala Lys Tyr Pro Thr Phe Leu Tyr Ala Met Pro
 145 150 155 160
 Met Ser Pro Thr Arg Val Phe Phe Glu Glu Thr Cys Leu Ala Ser Lys
 165 170 175
 Asp Ala Met Pro Phe Asp Leu Leu Lys Lys Lys Leu Met Leu Arg Leu
 180 185 190
 Asn Thr Leu Gly Val Arg Ile Lys Glu Ile Tyr Glu Glu Glu Trp Ser
 195 200 205
 Tyr Ile Pro Val Gly Gly Ser Leu Pro Asn Thr Glu Gln Lys Thr Leu
 210 215 220
 Ala Phe Gly Ala Ala Ala Ser Met Val His Pro Ala Thr Gly Tyr Ser
 225 230 235 240
 Val Val Arg Ser Leu Ser Glu Ala Pro Lys Cys Ala Phe Val Leu Ala
 245 250 255
 Asn Ile Leu Arg Gln Asn His Ser Lys Asn Met Leu Thr Ser Ser Ser
 260 265 270
 Thr Pro Ser Ile Ser Thr Gln Ala Trp Asn Thr Leu Trp Pro Gln Glu
 275 280 285
 Arg Lys Arg Gln Arg Ser Phe Phe Leu Phe Gly Leu Ala Leu Ile Leu
 290 295 300
 Gln Leu Asp Ile Glu Gly Ile Arg Ser Phe Phe Arg Ala Phe Phe Arg
 305 310 315 320
 Val Pro Lys Trp Met Trp Gln Gly Phe Leu Gly Ser Ser Leu Ser Xaa
 325 330 335
 Ala Asp Leu Met Leu Phe Ala Phe Tyr Met Phe Ile Ile Ala Pro Asn
 340 345 350
 Asp Met Arg Arg Gly Leu Ile Arg His Leu Leu Ser Asp Pro Thr Gly
 355 360 365
 Ala Thr Leu Ile Arg Thr Tyr Leu Thr Phe
 370 375

<210> 49
 <211> 524
 <212> PRT
 <213> Arabidopsis thaliana
 <400> 49

Met Glu Cys Val Gly Ala Arg Asn Phe Ala Ala Met Ala Val Ser Thr
 1 5 10 15
 Phe Pro Ser Trp Ser Cys Arg Arg Lys Phe Pro Val Val Lys Arg Tyr
 20 25 30
 Ser Tyr Arg Asn Ile Arg Phe Gly Leu Cys Ser Val Arg Ala Ser Gly
 35 40 45
 Gly Gly Ser Ser Gly Ser Glu Ser Cys Val Ala Val Arg Glu Asp Phe
 50 55 60
 Ala Asp Glu Glu Asp Phe Val Lys Ala Gly Gly Ser Glu Ile Leu Phe
 65 70 75 80
 Val Gln Met Gln Gln Asn Lys Asp Met Asp Glu Gln Ser Lys Leu Val
 85 90 95
 Asp Lys Leu Pro Pro Ile Ser Ile Gly Asp Gly Ala Leu Asp His Val
 100 105 110
 Val Ile Gly Cys Gly Pro Ala Gly Leu Ala Leu Ala Ala Glu Ser Ala
 115 120 125
 Lys Leu Gly Leu Lys Val Gly Leu Ile Gly Pro Asp Leu Pro Phe Thr
 130 135 140
 Asn Asn Tyr Gly Val Trp Glu Asp Glu Phe Asn Asp Leu Gly Leu Gln
 145 150 155 160
 Lys Cys Ile Glu His Val Trp Arg Glu Thr Ile Val Tyr Leu Asp Asp
 165 170 175
 Asp Lys Pro Ile Thr Ile Gly Arg Ala Tyr Gly Arg Val Ser Arg Arg
 180 185 190
 Leu Leu His Glu Glu Leu Leu Arg Arg Cys Val Glu Ser Gly Val Ser
 195 200 205
 Tyr Leu Ser Ser Lys Val Asp Ser Ile Thr Glu Ala Ser Asp Gly Leu
 210 215 220
 Arg Leu Val Ala Cys Asp Asp Asn Asn Val Ile Pro Cys Arg Leu Ala
 225 230 235 240
 Thr Val Ala Ser Gly Ala Ala Ser Gly Lys Leu Leu Gln Tyr Glu Val
 245 250 255
 Gly Gly Pro Arg Val Cys Val Gln Thr Ala Tyr Gly Val Glu Val Glu
 260 265 270
 Val Glu Asn Ser Pro Tyr Asp Pro Asp Gln Met Val Phe Met Asp Tyr
 275 280 285
 Arg Asp Tyr Thr Asn Glu Lys Val Arg Ser Leu Glu Ala Glu Tyr Pro
 290 295 300
 Thr Phe Leu Tyr Ala Met Pro Met Thr Lys Ser Arg Leu Phe Phe Glu
 305 310 315 320
 Glu Thr Cys Leu Ala Ser Lys Asp Val Met Pro Phe Asp Leu Leu Lys

325 330 335
 Thr Lys Leu Met Leu Arg Leu Asp Thr Leu Gly Ile Arg Ile Leu Lys
 340 345 350
 Thr Tyr Glu Glu Glu Trp Ser Tyr Ile Pro Val Gly Gly Ser Leu Pro
 355 360 365
 Asn Thr Glu Gln Lys Asn Leu Ala Phe Gly Ala Ala Ala Ser Met Val
 370 375 380
 His Pro Ala Thr Gly Tyr Ser Val Val Arg Ser Leu Ser Glu Ala Pro
 385 390 395 400
 Lys Tyr Ala Ser Val Ile Ala Glu Ile Leu Arg Glu Glu Thr Thr Lys
 405 410 415
 Gln Ile Asn Ser Asn Ile Ser Arg Gln Ala Trp Asp Thr Leu Trp Pro
 420 425 430
 Pro Glu Arg Lys Arg Gln Arg Ala Phe Phe Leu Phe Gly Leu Ala Leu
 435 440 445
 Ile Val Gln Phe Asp Thr Glu Gly Ile Arg Ser Phe Phe Arg Thr Phe
 450 455 460
 Phe Arg Leu Pro Lys Trp Met Trp Gln Gly Phe Leu Gly Ser Thr Leu
 465 470 475 480
 Thr Ser Gly Asp Leu Val Leu Phe Ala Leu Tyr Met Phe Val Ile Ser
 485 490 495
 Pro Asn Asn Leu Arg Lys Gly Leu Ile Asn His Leu Ile Ser Asp Pro
 500 505 510
 Thr Gly Ala Thr Met Ile Lys Thr Tyr Leu Lys Val
 515 520

<210> 50
 <211> 529
 <212> PRT
 <213> Adonis palaestina

<400> 50
 Met Glu Leu Leu Gly Val Arg Asn Leu Ile Ser Ser Cys Pro Val Trp
 1 5 10 15
 Thr Phe Gly Thr Arg Asn Leu Ser Ser Ser Lys Leu Ala Tyr Asn Ile
 20 25 30
 His Arg Tyr Gly Ser Ser Cys Arg Val Asp Phe Gln Val Arg Ala Asp
 35 40 45
 Gly Gly Ser Gly Ser Arg Ser Ser Val Ala Tyr Lys Glu Gly Phe Val
 50 55 60
 Asp Glu Glu Asp Phe Ile Lys Ala Gly Gly Ser Glu Leu Leu Phe Val
 65 70 75 80
 Gln Met Gln Gln Thr Lys Ser Met Glu Lys Gln Ala Lys Leu Ala Asp

52

Val Val Ser Gly Gln Ser Ser Ala Val Asn Ile Ser Met Gln Ala Trp
 420 425 430

Ser Ser Leu Trp Pro Lys Glu Arg Lys Arg Gln Arg Ala Phe Phe Leu
 435 440 445

Phe Gly Leu Glu Leu Ile Val Gln Leu Asp Ile Glu Ala Thr Arg Thr
 450 455 460

Phe Phe Arg Thr Phe Phe Arg Leu Pro Thr Trp Met Trp Trp Gly Phe
 465 470 475 480

Leu Gly Ser Ser Leu Ser Ser Phe Asp Leu Val Leu Phe Ser Met Tyr
 485 490 495

Met Phe Val Leu Ala Pro Asn Ser Met Arg Met Ser Leu Val Arg His
 500 505 510

Leu Leu Ser Asp Pro Ser Gly Ala Val Met Val Arg Ala Tyr Leu Glu
 515 520 525

Arg

<210> 51
 <211> 529
 <212> PRT
 <213> Adonis palaestina

<400> 51
 Met Glu Leu Leu Gly Val Arg Asn Leu Ile Ser Ser Cys Pro Val Trp
 1 5 10 15

Thr Phe Gly Thr Arg Asn Leu Ser Ser Ser Lys Leu Ala Tyr Asn Ile
 20 25 30

His Arg Tyr Gly Ser Ser Cys Arg Val Asp Phe Gln Val Arg Ala Asp
 35 40 45

Gly Gly Ser Gly Ser Arg Thr Ser Val Ala Tyr Lys Glu Gly Phe Val
 50 55 60

Asp Glu Glu Asp Phe Ile Lys Ala Gly Gly Ser Glu Leu Leu Phe Val
 65 70 75 80

Gln Met Gln Gln Thr Lys Ser Met Glu Lys Gln Ala Lys Leu Ala Asp
 85 90 95

Lys Leu Pro Pro Ile Pro Phe Gly Glu Ser Val Met Asp Leu Val Val
 100 105 110

Ile Gly Cys Gly Pro Ala Gly Leu Ser Leu Ala Ala Glu Ala Ala Lys
 115 120 125

Leu Gly Leu Lys Val Gly Leu Ile Gly Pro Asp Leu Pro Phe Thr Asn
 130 135 140

Asn Tyr Gly Val Trp Glu Asp Glu Phe Lys Asp Leu Gly Leu Glu Arg
 145 150 155 160

Cys Ile Glu His Ala Trp Lys Asp Thr Ile Val Tyr Leu Asp Asn Asp
 165 170 175
 Ala Pro Val Leu Ile Gly Arg Ala Tyr Gly Arg Val Ser Arg His Leu
 180 185 190
 Leu His Glu Glu Leu Leu Lys Arg Cys Val Glu Ser Gly Val Ser Tyr
 195 200 205
 Leu Asn Ser Lys Val Glu Arg Ile Thr Glu Ala Gly Asp Gly His Ser
 210 215 220
 Leu Val Val Cys Glu Asn Asp Ile Phe Ile Pro Cys Arg Leu Ala Thr
 225 230 235 240
 Val Ala Ser Gly Ala Ala Ser Gly Lys Leu Leu Glu Tyr Glu Val Gly
 245 250 255
 Gly Pro Arg Val Cys Val Gln Thr Ala Tyr Gly Val Glu Val Glu Val
 260 265 270
 Glu Asn Asn Pro Tyr Asp Pro Asn Leu Met Val Phe Met Asp Tyr Arg
 275 280 285
 Asp Tyr Met Gln Gln Lys Leu Gln Cys Ser Glu Glu Glu Tyr Pro Thr
 290 295 300
 Phe Leu Tyr Val Met Pro Met Ser Pro Thr Arg Leu Phe Phe Glu Glu
 305 310 315 320
 Thr Cys Leu Ala Ser Lys Asp Ala Met Pro Phe Asp Leu Leu Lys Arg
 325 330 335
 Lys Leu Met Ser Arg Leu Lys Thr Leu Gly Ile Gln Val Thr Lys Ile
 340 345 350
 Tyr Glu Glu Glu Trp Ser Tyr Ile Pro Val Gly Gly Ser Leu Pro Asn
 355 360 365
 Thr Glu Gln Lys Asn Leu Ala Phe Gly Ala Ala Ala Ser Met Val His
 370 375 380
 Pro Ala Thr Gly Tyr Ser Val Val Arg Ser Leu Ser Glu Ala Pro Lys
 385 390 395 400
 Tyr Ala Ser Val Ile Ala Lys Ile Leu Lys Gln Asp Asn Ser Ala Tyr
 405 410 415
 Val Val Ser Gly Gln Ser Ser Ala Val Asn Ile Ser Met Gln Ala Trp
 420 425 430
 Ser Ser Leu Trp Pro Lys Glu Arg Lys Arg Gln Arg Ala Phe Phe Leu
 435 440 445
 Phe Gly Leu Glu Leu Ile Val Gln Leu Asp Ile Glu Ala Thr Arg Thr
 450 455 460
 Phe Phe Arg Thr Phe Phe Arg Leu Pro Thr Trp Met Trp Trp Gly Phe
 465 470 475 480
 Leu Gly Ser Ser Leu Ser Ser Phe Asp Leu Val Leu Phe Ser Met Tyr

	485		490		495
Met Phe Val	Leu Ala Pro Asn Ser	Met Arg Met Ser	Leu Val Arg His		
	500	505	510		
Leu Leu Ser	Asp Pro Ser Gly Ala	Val Met Val Lys	Ala Tyr Leu Glu		
	515	520	525		

Arg

<210> 52
 <211> 533
 <212> PRT
 <213> Lettuce

<400> 52
 Met Glu Cys Phe Gly Ala Arg Asn Met Thr Ala Thr Met Ala Val Phe
 1 5 10 15

Thr Cys Pro Arg Phe Thr Asp Cys Asn Ile Arg His Lys Phe Ser Leu
 20 25 30

Leu Lys Gln Arg Arg Phe Thr Asn Leu Ser Ala Ser Ser Ser Leu Arg
 35 40 45

Gln Ile Lys Cys Ser Ala Lys Ser Asp Arg Cys Val Val Asp Lys Gln
 50 55 60

Gly Ile Ser Val Ala Asp Glu Glu Asp Tyr Val Lys Ala Gly Gly Ser
 65 70 75 80

Glu Leu Phe Phe Val Gln Met Gln Arg Thr Lys Ser Met Glu Ser Gln
 85 90 95

Ser Lys Leu Ser Glu Lys Leu Ala Gln Ile Pro Ile Gly Asn Cys Ile
 100 105 110

Leu Asp Leu Val Val Ile Gly Cys Gly Pro Ala Gly Leu Ala Leu Ala
 115 120 125

Ala Glu Ser Ala Lys Leu Gly Leu Asn Val Gly Leu Ile Gly Pro Asp
 130 135 140

Leu Pro Phe Thr Asn Asn Tyr Gly Val Trp Gln Asp Glu Phe Ile Gly
 145 150 155 160

Leu Gly Leu Glu Gly Cys Ile Glu His Ser Trp Lys Asp Thr Leu Val
 165 170 175

Tyr Leu Asp Asp Ala Asp Pro Ile Arg Ile Gly Arg Ala Tyr Gly Arg
 180 185 190

Val His Arg Asp Leu Leu His Glu Glu Leu Leu Arg Arg Cys Val Glu
 195 200 205

Ser Gly Val Ser Tyr Leu Ser Ser Lys Val Glu Arg Ile Thr Glu Ala
 210 215 220

Pro Asn Gly Tyr Ser Leu Ile Glu Cys Glu Gly Asn Ile Thr Ile Pro

225		230		235		240
Cys Arg Leu Ala Thr	Val Ala Ser Gly Ala	Ala Ser Gly Lys Phe Leu				
	245		250			255
Glu Tyr Glu Leu Gly Gly Pro Arg	Val Cys Val Gln Thr Ala Tyr Gly					
	260		265		270	
Ile Glu Val Glu Val Glu Asn Asn Pro Tyr Asp Pro Asp Leu Met Val						
	275		280		285	
Phe Met Asp Tyr Arg Asp Phe Ser Lys His Lys Pro Glu Ser Leu Glu						
	290		295		300	
Ala Lys Tyr Pro Thr Phe Leu Tyr Val Met Ala Met Ser Pro Thr Lys						
305		310		315		320
Ile Phe Phe Glu Glu Thr Cys Leu Ala Ser Arg Glu Ala Met Pro Phe						
	325		330			335
Asn Leu Leu Lys Ser Lys Leu Met Ser Arg Leu Lys Ala Met Gly Ile						
	340		345		350	
Arg Ile Thr Arg Thr Tyr Glu Glu Glu Trp Ser Tyr Ile Pro Val Gly						
	355		360		365	
Gly Ser Leu Pro Asn Thr Glu Gln Lys Asn Leu Ala Phe Gly Ala Ala						
	370		375		380	
Ala Ser Met Val His Pro Ala Thr Gly Tyr Ser Val Val Arg Ser Leu						
385		390		395		400
Ser Glu Ala Pro Asn Tyr Ala Ala Val Ile Ala Lys Ile Leu Arg Gln						
	405		410			415
Asp Gln Ser Lys Glu Met Ile Ser Leu Gly Lys Tyr Thr Asn Ile Ser						
	420		425		430	
Lys Gln Ala Trp Glu Thr Leu Trp Pro Leu Glu Arg Lys Arg Gln Arg						
	435		440		445	
Ala Phe Phe Leu Phe Gly Leu Ser His Ile Val Leu Met Asp Leu Glu						
	450		455		460	
Gly Thr Arg Thr Phe Phe Arg Thr Phe Phe Arg Leu Pro Lys Trp Met						
465		470		475		480
Trp Trp Gly Phe Leu Gly Ser Ser Leu Ser Ser Thr Asp Leu Ile Ile						
	485		490			495
Phe Ala Leu Tyr Met Phe Val Ile Ala Pro His Ser Leu Arg Met Glu						
	500		505		510	
Leu Val Arg His Leu Leu Ser Asp Pro Thr Gly Ala Thr Met Val Lys						
	515		520		525	
Ala Tyr Leu Thr Ile						
530						

<210> 53

<211> 526

<212> PRT

<213> Tomato

<400> 53

Met Glu Cys Val Gly Val Gln Asn Val Gly Ala Met Ala Val Leu Thr
 1 5 10 15

Arg Pro Arg Leu Asn Arg Trp Ser Gly Gly Glu Leu Cys Gln Glu Lys
 20 25 30

Ser Ile Phe Leu Ala Tyr Glu Gln Tyr Glu Ser Lys Cys Asn Ser Ser
 35 40 45

Ser Gly Ser Asp Ser Cys Val Val Asp Lys Glu Asp Phe Ala Asp Glu
 50 55 60

Glu Asp Tyr Ile Lys Ala Gly Gly Ser Gln Leu Val Phe Val Gln Met
 65 70 75 80

Gln Gln Lys Lys Asp Met Asp Gln Gln Ser Lys Leu Ser Asp Glu Leu
 85 90 95

Arg Gln Ile Ser Ala Gly Gln Thr Val Leu Asp Leu Val Val Ile Gly
 100 105 110

Cys Gly Pro Ala Gly Leu Ala Leu Ala Ala Glu Ser Ala Lys Leu Gly
 115 120 125

Leu Asn Val Gly Leu Val Gly Pro Asp Leu Pro Phe Thr Asn Asn Tyr
 130 135 140

Gly Val Trp Glu Asp Glu Phe Lys Asp Leu Gly Leu Gln Ala Cys Ile
 145 150 155 160

Glu His Val Trp Arg Asp Thr Ile Val Tyr Leu Asp Asp Asp Glu Pro
 165 170 175

Ile Leu Ile Gly Arg Ala Tyr Gly Arg Val Ser Arg His Phe Leu His
 180 185 190

Glu Glu Leu Leu Lys Arg Cys Val Glu Ala Gly Val Leu Tyr Leu Asn
 195 200 205

Ser Lys Val Asp Arg Ile Val Glu Ala Thr Asn Gly Gln Ser Leu Val
 210 215 220

Glu Cys Glu Gly Asp Val Val Ile Pro Cys Arg Phe Val Thr Val Ala
 225 230 235 240

Ser Gly Ala Ala Ser Gly Lys Phe Leu Gln Tyr Glu Leu Gly Ser Pro
 245 250 255

Arg Val Ser Val Gln Thr Ala Tyr Gly Val Glu Val Glu Val Asp Asn
 260 265 270

Asn Pro Phe Asp Pro Ser Leu Met Val Phe Met Asp Tyr Arg Asp Tyr
 275 280 285

Leu Arg His Asp Ala Gln Ser Leu Glu Ala Lys Tyr Pro Thr Phe Leu
 290 295 300

Tyr Ala Met Pro Met Ser Pro Thr Arg Val Phe Phe Glu Glu Thr Cys
 305 310 315 320
 Leu Ala Ser Lys Asp Ala Met Pro Phe Asp Leu Leu Lys Lys Lys Leu
 325 330 335
 Met Leu Arg Leu Asn Thr Leu Gly Val Arg Ile Lys Glu Ile Tyr Glu
 340 345 350
 Glu Glu Trp Ser Tyr Ile Pro Val Gly Gly Ser Leu Pro Asn Thr Glu
 355 360 365
 Gln Lys Thr Leu Ala Phe Gly Ala Ala Ala Ser Met Val His Pro Ala
 370 375 380
 Thr Gly Tyr Ser Val Val Arg Ser Leu Ser Glu Ala Pro Lys Cys Ala
 385 390 395 400
 Ser Val Leu Ala Asn Ile Leu Arg Gln His Tyr Ser Lys Asn Met Leu
 405 410 415
 Thr Ser Ser Ser Ile Pro Ser Ile Ser Thr Gln Ala Trp Asn Thr Leu
 420 425 430
 Trp Pro Gln Glu Arg Lys Arg Gln Arg Ser Phe Phe Leu Phe Gly Leu
 435 440 445
 Ala Leu Ile Leu Gln Leu Asp Ile Glu Gly Ile Arg Ser Phe Phe Arg
 450 455 460
 Ala Phe Phe Arg Val Pro Lys Trp Met Trp Gln Gly Phe Leu Gly Ser
 465 470 475 480
 Ser Leu Ser Ser Ala Asp Leu Met Leu Phe Ala Phe Tyr Met Phe Ile
 485 490 495
 Ile Ala Pro Asn Asp Met Arg Lys Gly Leu Ile Arg His Leu Leu Ser
 500 505 510
 Asp Pro Thr Gly Ala Thr Leu Ile Arg Thr Tyr Leu Thr Phe
 515 520 525

<210> 54
 <211> 516
 <212> PRT
 <213> Tagetes erecta

<400> 54
 Met Ser Met Arg Ala Gly His Met Thr Ala Thr Met Ala Ala Phe Thr
 1 5 10 15
 Cys Pro Arg Phe Met Thr Ser Ile Arg Tyr Thr Lys Gln Ile Lys Cys
 20 25 30
 Asn Ala Ala Lys Ser Gln Leu Val Val Lys Gln Glu Ile Glu Glu Glu
 35 40 45
 Glu Asp Tyr Val Lys Ala Gly Gly Ser Glu Leu Leu Phe Val Gln Met
 50 55 60

Gln Gln Asn Lys Ser Met Asp Ala Gln Ser Ser Leu Ser Gln Lys Leu
 65 70 75 80
 Pro Arg Val Pro Ile Gly Gly Gly Gly Asp Ser Asn Cys Ile Leu Asp
 85 90 95
 Leu Val Val Ile Gly Cys Gly Pro Ala Gly Leu Ala Leu Ala Gly Glu
 100 105 110
 Ser Ala Lys Leu Gly Leu Asn Val Ala Leu Ile Gly Pro Asp Leu Pro
 115 120 125
 Phe Thr Asn Asn Tyr Gly Val Trp Glu Asp Glu Phe Ile Gly Leu Gly
 130 135 140
 Leu Glu Gly Cys Ile Glu His Val Trp Arg Asp Thr Val Val Tyr Leu
 145 150 155 160
 Asp Asp Asn Asp Pro Ile Leu Ile Gly Arg Ala Tyr Gly Arg Val Ser
 165 170 175
 Arg Asp Leu Leu His Glu Glu Leu Leu Thr Arg Cys Met Glu Ser Gly
 180 185 190
 Val Ser Tyr Leu Ser Ser Lys Val Glu Arg Ile Thr Glu Ala Pro Asn
 195 200 205
 Gly Leu Ser Leu Ile Glu Cys Glu Gly Asn Ile Thr Ile Pro Cys Arg
 210 215 220
 Leu Ala Thr Val Ala Ser Gly Ala Ala Ser Gly Lys Leu Leu Gln Tyr
 225 230 235 240
 Glu Leu Gly Gly Pro Arg Val Cys Val Gln Thr Ala Tyr Gly Ile Glu
 245 250 255
 Val Glu Val Glu Ser Ile Pro Tyr Asp Pro Ser Leu Met Val Phe Met
 260 265 270
 Asp Tyr Arg Asp Tyr Thr Lys His Lys Ser Gln Ser Leu Glu Ala Gln
 275 280 285
 Tyr Pro Thr Phe Leu Tyr Val Met Pro Met Ser Pro Thr Lys Val Phe
 290 295 300
 Phe Glu Glu Thr Cys Leu Ala Ser Lys Glu Ala Met Pro Phe Glu Leu
 305 310 315 320
 Leu Lys Thr Lys Leu Met Ser Arg Leu Lys Thr Met Gly Ile Arg Ile
 325 330 335
 Thr Lys Thr Tyr Glu Glu Glu Trp Ser Tyr Ile Pro Val Gly Gly Ser
 340 345 350
 Leu Pro Asn Thr Glu Gln Lys Asn Leu Ala Phe Gly Ala Ala Ala Ser
 355 360 365
 Met Val His Pro Ala Thr Gly Tyr Ser Val Val Arg Ser Leu Ser Glu
 370 375 380
 Ala Pro Asn Tyr Ala Ala Val Ile Ala Lys Ile Leu Gly Lys Gly Asn

385 390 395 400
 Ser Lys Gln Met Leu Asp His Gly Arg Tyr Thr Thr Asn Ile Ser Lys
 405 410 415
 Gln Ala Trp Glu Thr Leu Trp Pro Leu Glu Arg Lys Arg Gln Arg Ala
 420 425 430
 Phe Phe Leu Phe Gly Leu Ala Leu Ile Val Gln Met Asp Ile Glu Gly
 435 440 445
 Thr Arg Thr Phe Phe Arg Thr Phe Phe Arg Leu Pro Thr Trp Met Trp
 450 455 460
 Trp Gly Phe Leu Gly Ser Ser Leu Ser Ser Thr Asp Leu Ile Ile Phe
 465 470 475 480
 Ala Phe Tyr Met Phe Ile Ile Ala Pro His Ser Leu Arg Met Gly Leu
 485 490 495
 Val Arg His Leu Leu Ser Asp Pro Thr Gly Gly Thr Met Leu Lys Ala
 500 505 510
 Tyr Leu Thr Ile
 515

<210> 55
 <211> 501
 <212> PRT
 <213> Arabidopsis thaliana

<400> 55
 Met Asp Thr Leu Leu Lys Thr Pro Asn Lys Leu Asp Phe Phe Ile Pro
 1 5 10 15
 Gln Phe His Gly Phe Glu Arg Leu Cys Ser Asn Asn Pro Tyr His Ser
 20 25 30
 Arg Val Arg Leu Gly Val Lys Lys Arg Ala Ile Lys Ile Val Ser Ser
 35 40 45
 Val Val Ser Gly Ser Ala Ala Leu Leu Asp Leu Val Pro Glu Thr Lys
 50 55 60
 Lys Glu Asn Leu Asp Phe Glu Leu Pro Leu Tyr Asp Thr Ser Lys Ser
 65 70 75 80
 Gln Val Val Asp Leu Ala Ile Val Gly Gly Gly Pro Ala Gly Leu Ala
 85 90 95
 Val Ala Gln Gln Val Ser Glu Ala Gly Leu Ser Val Cys Ser Ile Asp
 100 105 110
 Pro Ser Pro Lys Leu Ile Trp Pro Asn Asn Tyr Gly Val Trp Val Asp
 115 120 125
 Glu Phe Glu Ala Met Asp Leu Leu Asp Cys Leu Asp Thr Thr Trp Ser
 130 135 140
 Gly Ala Val Val Tyr Val Asp Glu Gly Val Lys Lys Asp Leu Ser Arg

145		150		155		160
Pro Tyr Gly Arg	Val Asn Arg Lys Gln Leu	Lys Ser Lys Met	Leu Gln			
	165		170			175
Lys Cys Ile Thr	Asn Gly Val Lys Phe His Gln Ser Lys	Val Thr Asn				
	180	185	190			
Val Val His Glu Glu Ala Asn Ser Thr Val Val Cys Ser Asp Gly Val						
	195	200	205			
Lys Ile Gln Ala Ser Val Val Leu Asp Ala Thr Gly Phe Ser Arg Cys						
	210	215	220			
Leu Val Gln Tyr Asp Lys Pro Tyr Asn Pro Gly Tyr Gln Val Ala Tyr						
	225	230	235			240
Gly Ile Val Ala Glu Val Asp Gly His Pro Phe Asp Val Asp Lys Met						
	245	250	255			
Val Phe Met Asp Trp Arg Asp Lys His Leu Asp Ser Tyr Pro Glu Leu						
	260	265	270			
Lys Glu Arg Asn Ser Lys Ile Pro Thr Phe Leu Tyr Ala Met Pro Phe						
	275	280	285			
Ser Ser Asn Arg Ile Phe Leu Glu Glu Thr Ser Leu Val Ala Arg Pro						
	290	295	300			
Gly Leu Arg Met Glu Asp Ile Gln Glu Arg Met Ala Ala Arg Leu Lys						
	305	310	315			320
His Leu Gly Ile Asn Val Lys Arg Ile Glu Glu Asp Glu Arg Cys Val						
	325	330	335			
Ile Pro Met Gly Gly Pro Leu Pro Val Leu Pro Gln Arg Val Val Gly						
	340	345	350			
Ile Gly Gly Thr Ala Gly Met Val His Pro Ser Thr Gly Tyr Met Val						
	355	360	365			
Ala Arg Thr Leu Ala Ala Ala Pro Ile Val Ala Asn Ala Ile Val Arg						
	370	375	380			
Tyr Leu Gly Ser Pro Ser Ser Asn Ser Leu Arg Gly Asp Gln Leu Ser						
	385	390	395			400
Ala Glu Val Trp Arg Asp Leu Trp Pro Ile Glu Arg Arg Arg Gln Arg						
	405	410	415			
Glu Phe Phe Cys Phe Gly Met Asp Ile Leu Leu Lys Leu Asp Leu Asp						
	420	425	430			
Ala Thr Arg Arg Phe Phe Asp Ala Phe Phe Asp Leu Gln Pro His Tyr						
	435	440	445			
Trp His Gly Phe Leu Ser Ser Arg Leu Phe Leu Pro Glu Leu Leu Val						
	450	455	460			
Phe Gly Leu Ser Leu Phe Ser His Ala Ser Asn Thr Ser Arg Leu Glu						
	465	470	475			480

Ile Met Thr Lys Gly Thr Val Pro Leu Ala Lys Met Ile Asn Asn Leu
 485 490 495

Val Gln Asp Arg Asp
 500

<210> 56

<211> 502

<212> PRT

<213> Adonis palaestina

<400> 56

Met Asp Thr Leu Leu Arg Thr His Asn Lys Leu Glu Leu Leu Pro Thr
 1 5 10 15

Leu His Gly Phe Ala Glu Lys Gln His Leu Val Ser Thr Ser Lys Leu
 20 25 30

Gln Asn Gln Val Phe Arg Ile Ala Ser Arg Asn Ile His Pro Cys Arg
 35 40 45

Asn Gly Thr Val Lys Ala Arg Gly Ser Ala Leu Leu Glu Leu Val Pro
 50 55 60

Glu Thr Lys Lys Glu Asn Leu Glu Phe Asp Leu Pro Ala Tyr Asp Pro
 65 70 75 80

Ser Arg Gly Ile Val Val Asp Leu Ala Val Val Gly Gly Gly Pro Ala
 85 90 95

Gly Leu Ala Ile Ala Gln Gln Val Ser Glu Ala Gly Leu Leu Val Cys
 100 105 110

Ser Ile Asp Pro Ser Pro Lys Leu Ile Trp Pro Asn Asn Tyr Gly Val
 115 120 125

Trp Val Asp Glu Phe Glu Ala Met Asp Leu Leu Asp Cys Leu Asp Thr
 130 135 140

Thr Trp Ser Gly Ala Val Val Tyr Thr Asp Asp Asn Ser Lys Lys Tyr
 145 150 155 160

Leu Asp Arg Pro Tyr Gly Arg Val Asn Arg Lys Gln Leu Lys Ser Lys
 165 170 175

Met Leu Gln Lys Cys Val Thr Asn Gly Val Lys Phe His Gln Ala Lys
 180 185 190

Val Ile Lys Val Ile His Glu Glu Ser Lys Ser Leu Leu Ile Cys Asn
 195 200 205

Asp Gly Ile Thr Ile Asn Ala Thr Val Val Leu Asp Ala Thr Gly Phe
 210 215 220

Ser Arg Cys Leu Val Gln Tyr Asp Lys Pro Tyr Asn Pro Gly Tyr Gln
 225 230 235 240

Val Ala Tyr Gly Ile Met Ala Glu Val Glu Glu His Pro Phe Asp Leu
 245 250 255

Asp Lys Met Leu Phe Met Asp Trp Arg Asp Ser His Leu Asn Glu Lys
 260 265 270
 Leu Glu Leu Lys Asp Lys Asn Arg Lys Ile Pro Thr Phe Leu Tyr Ala
 275 280 285
 Met Pro Phe Ser Ser Thr Lys Ile Phe Leu Glu Glu Thr Ser Leu Val
 290 295 300
 Ala Arg Pro Gly Leu Arg Phe Glu Asp Ile Gln Glu Arg Met Val Ala
 305 310 315 320
 Arg Leu Lys His Leu Gly Ile Lys Val Lys Ser Ile Glu Glu Asp Glu
 325 330 335
 Arg Cys Val Ile Pro Met Gly Gly Pro Leu Pro Val Leu Pro Gln Arg
 340 345 350
 Val Val Gly Ile Gly Gly Thr Ala Gly Met Val His Pro Ser Thr Gly
 355 360 365
 Tyr Met Val Ala Arg Thr Leu Ala Ala Ala Pro Val Val Ala Lys Ser
 370 375 380
 Ile Val Gln Tyr Leu Gly Ser Asp Arg Ser Leu Ser Gly Asn Glu Leu
 385 390 395 400
 Ser Ala Glu Val Trp Lys Asp Leu Trp Pro Ile Glu Arg Arg Gln
 405 410 415
 Arg Glu Phe Phe Cys Phe Gly Met Asp Ile Leu Leu Lys Leu Asp Leu
 420 425 430
 Gln Gly Thr Arg Arg Phe Phe Asp Ala Phe Phe Asp Leu Glu Pro His
 435 440 445
 Tyr Trp His Gly Phe Leu Ser Ser Arg Leu Phe Leu Pro Glu Leu Leu
 450 455 460
 Phe Phe Gly Leu Ser Leu Phe Ser His Ala Ser Asn Ala Ser Arg Ile
 465 470 475 480
 Glu Ile Met Ala Lys Gly Thr Val Pro Leu Val Asn Met Met Asn Asn
 485 490 495
 Leu Ile Gln Asp Thr Asp
 500

<210> 57
 <211> 498
 <212> PRT
 <213> Pepper

<400> 57
 Met Asp Thr Leu Leu Arg Thr Pro Asn Asn Leu Glu Phe Leu His Gly
 1 5 10 15
 Phe Gly Val Lys Val Ser Ala Phe Ser Ser Val Lys Ser Gln Lys Phe
 20 25 30

64

355 360 365
 Arg Thr Leu Ala Ala Ala Pro Val Val Ala Asn Ala Ile Ile Gln Tyr
 370 375 380
 Leu Ser Ser Glu Arg Ser His Ser Gly Asp Glu Leu Ser Ala Ala Val
 385 390 395 400
 Trp Lys Asp Leu Trp Pro Ile Glu Arg Arg Arg Gln Arg Glu Phe Phe
 405 410 415
 Cys Phe Gly Met Asp Ile Leu Leu Lys Leu Asp Leu Pro Ala Thr Arg
 420 425 430
 Arg Phe Phe Asp Ala Phe Phe Asp Leu Glu Pro Arg Tyr Trp His Gly
 435 440 445
 Phe Leu Ser Ser Arg Leu Phe Leu Pro Glu Leu Ile Val Phe Gly Leu
 450 455 460
 Ser Leu Phe Ser His Ala Ser Asn Thr Ser Arg Leu Glu Ile Met Thr
 465 470 475 480
 Lys Gly Thr Leu Pro Leu Val His Met Ile Asn Asn Leu Leu Gln Asp
 485 490 495
 Lys Glu

<210> 58
 <211> 500
 <212> PRT
 <213> Tomato

<400> 58
 Met Asp Thr Leu Leu Lys Thr Pro Asn Asn Leu Glu Phe Leu Asn Pro
 1 5 10 15
 His His Gly Phe Ala Val Lys Ala Ser Thr Phe Arg Ser Glu Lys His
 20 25 30
 His Asn Phe Gly Ser Arg Lys Phe Cys Glu Thr Leu Gly Arg Ser Val
 35 40 45
 Cys Val Lys Gly Ser Ser Ser Ala Leu Leu Glu Leu Val Pro Glu Thr
 50 55 60
 Lys Lys Glu Asn Leu Asp Phe Glu Leu Pro Met Tyr Asp Pro Ser Lys
 65 70 75 80
 Gly Val Val Val Asp Leu Ala Val Val Gly Gly Gly Pro Ala Gly Leu
 85 90 95
 Ala Val Ala Gln Gln Val Ser Glu Ala Gly Leu Ser Val Cys Ser Ile
 100 105 110
 Asp Pro Asn Pro Lys Leu Ile Trp Pro Asn Asn Tyr Gly Val Trp Val
 115 120 125
 Asp Glu Phe Glu Ala Met Asp Leu Leu Asp Cys Leu Asp Ala Thr Trp

130	135	140
Ser Gly Ala Ala Val Tyr Ile Asp Asp Asn Thr Ala Lys Asp Leu His 145 150 155 160		
Arg Pro Tyr Gly Arg Val Asn Arg Lys Gln Leu Lys Ser Lys Met Met 165 170 175		
Gln Lys Cys Ile Met Asn Gly Val Lys Phe His Gln Ala Lys Val Ile 180 185 190		
Lys Val Ile His Glu Glu Ser Lys Ser Met Leu Ile Cys Asn Asp Gly 195 200 205		
Ile Thr Ile Gln Ala Thr Val Val Leu Asp Ala Thr Gly Phe Ser Arg 210 215 220		
Ser Leu Val Gln Tyr Asp Lys Pro Tyr Asn Pro Gly Tyr Gln Val Ala 225 230 235 240		
Tyr Gly Ile Leu Ala Glu Val Glu Glu His Pro Phe Asp Val Asn Lys 245 250 255		
Met Val Phe Met Asp Trp Arg Asp Ser His Leu Lys Asn Asn Thr Asp 260 265 270		
Leu Lys Glu Arg Asn Ser Arg Ile Pro Thr Phe Leu Tyr Ala Met Pro 275 280 285		
Phe Ser Ser Asn Arg Ile Phe Leu Glu Glu Thr Ser Leu Val Ala Arg 290 295 300		
Pro Gly Leu Arg Ile Asp Asp Ile Gln Glu Arg Met Val Ala Arg Leu 305 310 315 320		
Asn His Leu Gly Ile Lys Val Lys Ser Ile Glu Glu Asp Glu His Cys 325 330 335		
Leu Ile Pro Met Gly Gly Pro Leu Pro Val Leu Pro Gln Arg Val Val 340 345 350		
Gly Ile Gly Gly Thr Ala Gly Met Val His Pro Ser Thr Gly Tyr Met 355 360 365		
Val Ala Arg Thr Leu Ala Ala Ala Pro Val Val Ala Asn Ala Ile Ile 370 375 380		
Gln Tyr Leu Gly Ser Glu Arg Ser His Ser Gly Asn Glu Leu Ser Thr 385 390 395 400		
Ala Val Trp Lys Asp Leu Trp Pro Ile Glu Arg Arg Arg Gln Arg Glu 405 410 415		
Phe Phe Cys Phe Gly Met Asp Ile Leu Leu Lys Leu Asp Leu Pro Ala 420 425 430		
Thr Arg Arg Phe Phe Asp Ala Phe Phe Asp Leu Glu Pro Arg Tyr Trp 435 440 445		
His Gly Phe Leu Ser Ser Arg Leu Phe Leu Pro Glu Leu Ile Val Phe 450 455 460		

Gly Leu Ser Leu Phe Ser His Ala Ser Asn Thr Ser Arg Phe Glu Ile
 465 470 475 480
 Met Thr Lys Gly Thr Val Pro Leu Val Asn Met Ile Asn Asn Leu Leu
 485 490 495
 Gln Asp Lys Glu
 500

<210> 59
 <211> 500
 <212> PRT
 <213> Tobacco

<400> 59
 Met Asp Thr Leu Leu Lys Thr Pro Asn Lys Leu Glu Phe Leu His Pro
 1 5 10 15
 Val His Gly Phe Ser Val Lys Ala Ser Ser Phe Asn Ser Val Lys Pro
 20 25 30
 His Lys Phe Gly Ser Arg Lys Ile Cys Glu Asn Trp Gly Lys Gly Val
 35 40 45
 Cys Val Lys Ala Lys Ser Ser Ala Leu Leu Glu Leu Val Pro Glu Thr
 50 55 60
 Lys Lys Glu Asn Leu Asp Phe Glu Leu Pro Met Tyr Asp Pro Ser Lys
 65 70 75 80
 Gly Leu Val Val Asp Leu Ala Val Val Gly Gly Gly Pro Ala Gly Leu
 85 90 95
 Ala Val Ala Gln Gln Val Ser Glu Ala Gly Leu Ser Val Val Ser Ile
 100 105 110
 Asp Pro Ser Pro Lys Leu Ile Trp Pro Asn Asn Tyr Gly Val Trp Val
 115 120 125
 Asp Glu Phe Glu Ala Met Asp Leu Leu Asp Cys Leu Asp Ala Thr Trp
 130 135 140
 Ser Gly Thr Val Val Tyr Ile Asp Asp Asn Thr Thr Lys Asp Leu Asp
 145 150 155 160
 Arg Pro Tyr Gly Arg Val Asn Arg Lys Gln Leu Lys Ser Lys Met Met
 165 170 175
 Gln Lys Cys Ile Leu Asn Gly Val Lys Phe His His Ala Lys Val Ile
 180 185 190
 Lys Val Ile His Glu Glu Ala Lys Ser Met Leu Ile Cys Asn Asp Gly
 195 200 205
 Val Thr Ile Gln Ala Thr Val Val Leu Asp Ala Thr Gly Phe Ser Arg
 210 215 220
 Cys Leu Val Gln Tyr Asp Lys Pro Tyr Lys Pro Gly Tyr Gln Val Ala
 225 230 235 240

Tyr Gly Ile Leu Ala Glu Val Glu Glu His Pro Phe Asp Thr Ser Lys
 245 250 255
 Met Val Leu Met Asp Trp Arg Asp Ser His Leu Gly Asn Asn Met Glu
 260 265 270
 Leu Lys Glu Arg Asn Arg Lys Val Pro Thr Phe Leu Tyr Ala Met Pro
 275 280 285
 Phe Ser Ser Asn Lys Ile Phe Leu Glu Glu Thr Ser Leu Val Ala Arg
 290 295 300
 Pro Gly Leu Arg Met Asp Asp Ile Gln Glu Arg Met Val Ala Arg Leu
 305 310 315 320
 Asn His Leu Gly Ile Lys Val Lys Ser Ile Glu Glu Asp Glu His Cys
 325 330 335
 Val Ile Pro Met Gly Gly Ser Leu Pro Val Ile Pro Gln Arg Val Val
 340 345 350
 Gly Thr Gly Gly Thr Ala Gly Leu Val His Pro Ser Thr Gly Tyr Met
 355 360 365
 Val Ala Arg Thr Leu Ala Ala Ala Pro Val Val Ala Asn Ala Ile Ile
 370 375 380
 His Tyr Leu Gly Ser Glu Lys Asp Leu Leu Gly Asn Glu Leu Ser Ala
 385 390 395 400
 Ala Val Trp Lys Asp Leu Trp Pro Ile Glu Arg Arg Arg Gln Arg Glu
 405 410 415
 Phe Phe Cys Phe Gly Met Asp Ile Leu Leu Lys Leu Asp Leu Pro Ala
 420 425 430
 Thr Arg Arg Phe Phe Asp Ala Phe Phe Asp Leu Glu Pro Arg Tyr Trp
 435 440 445
 His Gly Phe Leu Ser Ser Arg Leu Tyr Leu Pro Glu Leu Ile Phe Phe
 450 455 460
 Gly Leu Ser Leu Phe Ser Arg Ala Ser Asn Thr Ser Arg Ile Glu Ile
 465 470 475 480
 Met Thr Lys Gly Thr Leu Pro Leu Val Asn Met Ile Asn Asn Leu Leu
 485 490 495
 Gln Asp Thr Glu
 500

<210> 60
 <211> 511
 <212> PRT
 <213> Tagetes erecta

<400> 60
 Met Asp Thr Phe Leu Arg Thr Tyr Asn Ser Phe Glu Phe Val His Pro
 1 5 10 15

Ser Asn Lys Phe Ala Gly Asn Leu Asn Asn Leu Asn Gln Leu Asn Gln
 20 25 30
 Ser Lys Ser Gln Phe Gln Asp Phe Arg Phe Gly Pro Lys Lys Ser Gln
 35 40 45
 Phe Lys Leu Gly Gln Lys Tyr Cys Val Lys Ala Ser Ser Ser Ala Leu
 50 55 60
 Leu Glu Leu Val Pro Glu Ile Lys Lys Glu Asn Leu Asp Phe Asp Leu
 65 70 75 80
 Pro Met Tyr Asp Pro Ser Arg Asn Val Val Val Asp Leu Val Val Val
 85 90 95
 Gly Gly Gly Pro Ser Gly Leu Ala Val Ala Gln Gln Val Ser Glu Ala
 100 105 110
 Gly Leu Thr Val Cys Ser Ile Asp Pro Ser Pro Lys Leu Ile Trp Pro
 115 120 125
 Asn Asn Tyr Gly Val Trp Val Asp Glu Phe Glu Ala Met Asp Leu Leu
 130 135 140
 Asp Cys Leu Asp Thr Thr Trp Ser Ser Ala Val Val Tyr Ile Asp Glu
 145 150 155 160
 Lys Ser Thr Lys Ser Leu Asn Arg Pro Tyr Ala Arg Val Asn Arg Lys
 165 170 175
 Gln Leu Lys Thr Lys Met Leu Gln Lys Cys Ile Ala Asn Gly Val Lys
 180 185 190
 Phe His Gln Ala Lys Val Ile Lys Val Ile His Glu Glu Leu Lys Ser
 195 200 205
 Leu Leu Ile Cys Asn Asp Gly Val Thr Ile Gln Ala Thr Leu Val Leu
 210 215 220
 Asp Ala Thr Gly Phe Ser Arg Ser Leu Val Gln Tyr Asp Lys Pro Tyr
 225 230 235 240
 Asn Pro Gly Tyr Gln Val Ala Tyr Gly Ile Leu Ala Glu Val Glu Glu
 245 250 255
 His Pro Phe Asp Val Asp Lys Met Leu Phe Met Asp Trp Arg Asp Ser
 260 265 270
 His Leu Asp Gln Asn Leu Glu Ile Lys Ala Arg Asn Ser Arg Ile Pro
 275 280 285
 Thr Phe Leu Tyr Ala Met Pro Phe Ser Ser Thr Arg Ile Phe Leu Glu
 290 295 300
 Glu Thr Ser Leu Val Ala Arg Pro Gly Leu Lys Met Glu Asp Ile Gln
 305 310 315 320
 Glu Arg Met Ala Tyr Arg Leu Lys His Leu Gly Ile Lys Val Lys Ser
 325 330 335
 Ile Glu Glu Asp Glu Arg Cys Val Ile Pro Met Gly Gly Pro Leu Pro

340 345 350
 Val Leu Pro Gln Arg Val Leu Gly Ile Gly Gly Thr Ala Gly Met Val
 355 360 365
 His Pro Ser Thr Gly Tyr Met Val Ala Arg Thr Leu Ala Ala Ala Pro
 370 375 380
 Ile Val Ala Lys Ser Ile Ile Arg Tyr Leu Asn Asn Glu Lys Ser Met
 385 390 395 400
 Val Ala Asp Val Thr Gly Asp Asp Leu Ala Ala Gly Ile Trp Arg Glu
 405 410 415
 Leu Trp Pro Ile Glu Arg Arg Arg Gln Arg Glu Phe Phe Cys Phe Gly
 420 425 430
 Met Asp Ile Leu Leu Lys Leu Asp Leu Glu Gly Thr Arg Arg Phe Phe
 435 440 445
 Asp Ala Phe Phe Asp Leu Glu Pro Arg Tyr Trp His Gly Phe Leu Ser
 450 455 460
 Ser Arg Leu Phe Leu Pro Glu Leu Val Thr Phe Gly Leu Ser Leu Phe
 465 470 475 480
 Gly His Ala Ser Asn Thr Cys Arg Val Glu Ile Met Ala Lys Gly Thr
 485 490 495
 Leu Pro Leu Ala Thr Met Ile Gly Asn Leu Val Arg Asp Arg Glu
 500 505 510

<210> 61
 <211> 503
 <212> PRT
 <213> Daffodil

<400> 61
 Met Asp Thr Leu Leu Arg Thr His Asn Arg Leu Glu Leu Leu Tyr Pro
 1 5 10 15
 Leu His Glu Leu Ala Lys Arg His Phe Leu Ser Pro Ser Pro Asn Pro
 20 25 30
 Gln Asn Pro Asn Phe Lys Phe Phe Ser Arg Lys Pro Tyr Gln Lys Lys
 35 40 45
 Cys Arg Asn Gly Tyr Ile Gly Val Ser Ser Asn Gln Leu Leu Asp Leu
 50 55 60
 Val Pro Glu Ile Lys Lys Glu His Leu Glu Phe Asp Leu Pro Leu Tyr
 65 70 75 80
 Asp Pro Ser Lys Ala Leu Thr Leu Asp Leu Ala Val Val Gly Gly Gly
 85 90 95
 Pro Leu Ala Arg Ser Cys Ser Thr Ser Leu Gly Gly Gly Leu Ser Val
 100 105 110
 Val Ser Ile Asp Pro Asn Pro Lys Leu Ile Trp Pro Asn Asn Tyr Gly

115					120					125					
Val	Trp	Val	Asp	Glu	Phe	Glu	Asp	Met	Asp	Leu	Leu	Asp	Cys	Leu	Asp
130						135					140				
Ala	Thr	Trp	Ser	Gly	Ala	Ile	Val	Tyr	Val	Asp	Asp	Arg	Ser	Thr	Lys
145					150					155					160
Asn	Leu	Ser	Arg	Pro	Tyr	Ala	Arg	Val	Asn	Arg	Lys	Asn	Leu	Lys	Ser
				165					170					175	
Lys	Met	Met	Lys	Lys	Cys	Val	Ser	Asn	Gly	Val	Arg	Phe	His	Gln	Ala
			180						185				190		
Thr	Val	Val	Lys	Ala	Met	His	Glu	Glu	Glu	Lys	Ser	Tyr	Leu	Ile	Cys
			195				200					205			
Ser	Asp	Gly	Val	Thr	Ile	Asp	Ala	Arg	Val	Val	Leu	Asp	Ala	Thr	Gly
	210					215					220				
Phe	Ser	Arg	Cys	Leu	Val	Gln	Tyr	Asp	Lys	Pro	Tyr	Asn	Pro	Gly	Tyr
225					230					235					240
Gln	Val	Ala	Tyr	Gly	Ile	Leu	Ala	Glu	Val	Glu	Glu	His	Pro	Phe	Asp
				245					250					255	
Val	Asp	Lys	Met	Val	Phe	Met	Asp	Trp	Arg	Asp	Ser	His	Leu	Asn	Gly
			260					265					270		
Lys	Ala	Glu	Leu	Asn	Glu	Arg	Asn	Ala	Lys	Ile	Pro	Thr	Phe	Leu	Tyr
			275				280					285			
Ala	Met	Pro	Phe	Ser	Ser	Asn	Arg	Ile	Phe	Leu	Glu	Glu	Thr	Ser	Leu
			290				295				300				
Val	Ala	Arg	Pro	Gly	Leu	Lys	Met	Glu	Asp	Ile	Gln	Glu	Arg	Met	Val
305					310					315					320
Ala	Arg	Leu	Asn	His	Leu	Gly	Ile	Arg	Ile	Lys	Ser	Ile	Glu	Glu	Asp
				325					330					335	
Glu	Arg	Cys	Val	Ile	Pro	Met	Gly	Gly	Pro	Leu	Pro	Val	Ile	Pro	Gln
			340					345					350		
Arg	Val	Val	Gly	Ile	Gly	Gly	Thr	Ala	Gly	Met	Val	His	Pro	Ser	Thr
			355				360					365			
Gly	Tyr	Met	Val	Ala	Arg	Thr	Leu	Ala	Ala	Ala	Pro	Ile	Val	Ala	Asn
			370			375					380				
Ser	Ile	Val	Gln	Tyr	Leu	Val	Ser	Asp	Ser	Gly	Leu	Ser	Gly	Asn	Asp
385					390					395					400
Leu	Ser	Ala	Asp	Val	Trp	Lys	Asp	Leu	Trp	Pro	Ile	Glu	Arg	Arg	Arg
				405					410					415	
Gln	Arg	Glu	Phe	Phe	Cys	Phe	Gly	Met	Asp	Ile	Leu	Leu	Lys	Leu	Asp
			420					425					430		
Leu	Glu	Gly	Thr	Arg	Arg	Phe	Phe	Asp	Ala	Phe	Phe	Asp	Leu	Glu	Pro
			435				440					445			

Arg	Tyr	Trp	His	Gly	Phe	Leu	Ser	Ser	Arg	Leu	Phe	Leu	Pro	Glu	Leu
450						455					460				
Val	Pro	Phe	Gly	Leu	Ser	Leu	Phe	Ser	His	Ala	Ser	Asn	Thr	Cys	Lys
465					470					475					480
Leu	Glu	Ile	Met	Ala	Lys	Gly	Thr	Leu	Pro	Leu	Val	Asn	Met	Ile	Asn
				485					490					495	
Asn	Leu	Val	Gln	Asp	Arg	Asp									
			500												